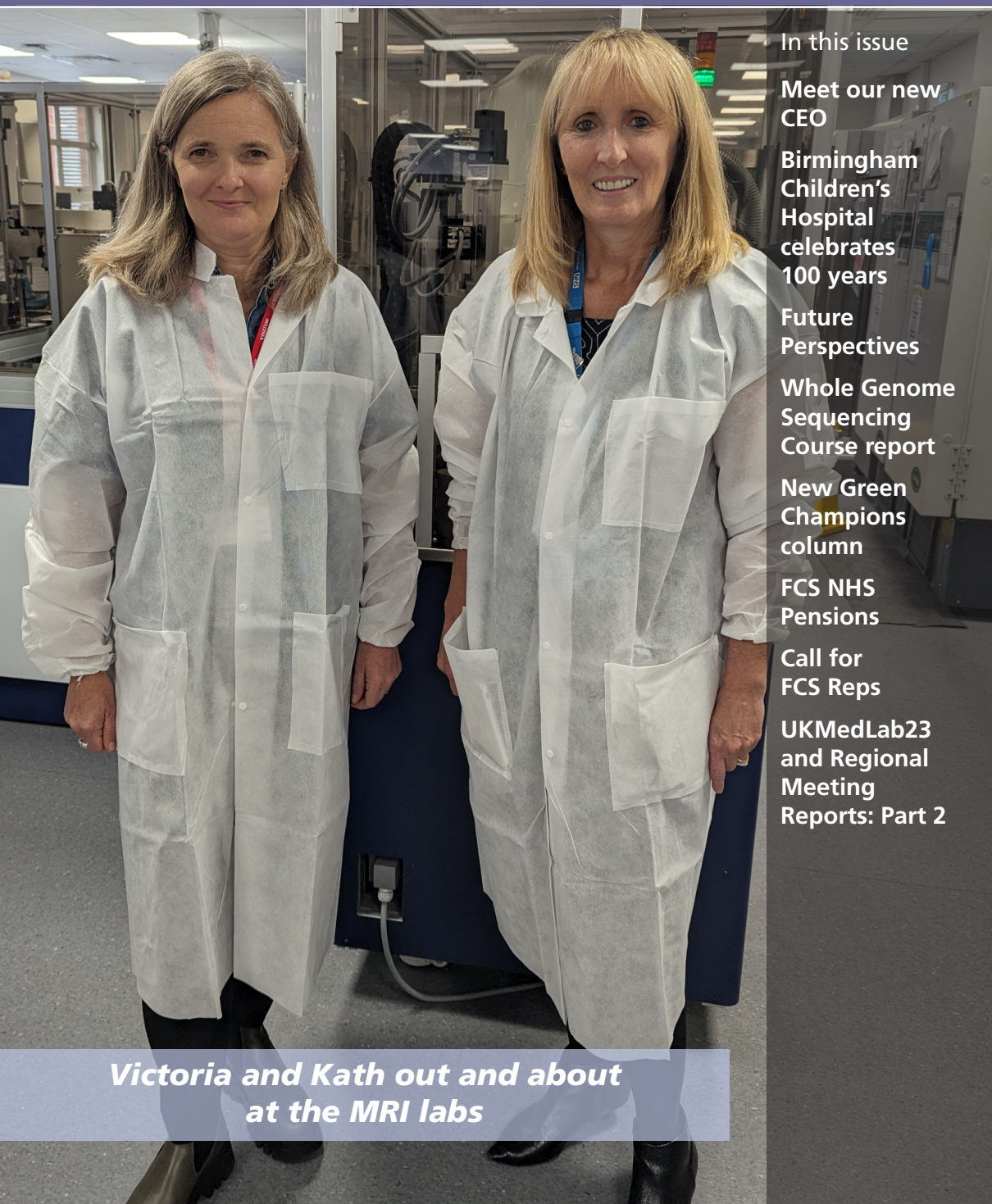
ACB News

The Association for Clinical Biochemistry & Laboratory Medicine | Issue 685 | October 2023



Victoria and Kath out and about at the MRI labs

In this issue

Meet our new CEO

Birmingham Children's Hospital celebrates 100 years

Future Perspectives

Whole Genome Sequencing Course report

New Green Champions column

FCS NHS Pensions

Call for FCS Reps

UKMedLab23 and Regional Meeting Reports: Part 2

A NICE FIT: Guideline Update From NICE on Faecal Immunochemical Testing (FIT)

The National Institute for Health and Care Excellence (NICE) has just updated the Diagnostic Guidelines for FIT, with DG30 being replaced by DG56. The guideline highlights the diagnostic accuracy, clinical utility, and cost effectiveness of the HM-JACKarc, making it an ideal fit for the colorectal cancer referral pathway.

It is expected that this new guideline will:

- ✓ Reduce the number of colonoscopies performed
- ✓ Help triage patients to prioritise those most at risk of colorectal cancer
- ✓ Reduce waiting lists for colonoscopies
- ✓ Lead to improved consistency of best practice across the country
- ✓ Lead to better health outcomes and care experience

The HM-JACKarc offers laboratories:

- ✓ A rapid, high-throughput testing solution
- ✓ An easy-to-use interface, with minimal maintenance requirements
- ✓ A compact footprint, reducing demands on precious laboratory space
- ✓ Wide linear range of 7 – 400 µg /g, negating the need for dilutions
- ✓ Direct loading sample device, drastically improving turnaround times

For more information on the DG56 guidelines visit:
www.nice.org.uk/guidance/dg56

alpha laboratories
supplying quality to science

02380 483000 • sales@alphalabs.co.uk • www.alphalabs.co.uk

ACB News

The bi-monthly magazine for clinical science

Issue 685 • October 2023

Message from the President page 4

CEO Update page 6

General News page 8

Future Perspectives page 21

Deacon's Challenge Revisited page 23

Microbiology News page 24

ACB Green Champions page 29

FCS News page 33

UKMedLab23 Meeting Reports page 37

Obituary page 53

Crossword page 55

The Association for Clinical Biochemistry & Laboratory Medicine

ISSN 2754-0863

Front cover: Victoria Logan and Kath Hayden on a recent visit to the labs at Manchester Royal Infirmary

Message from the President

At the end of July, I was pleased to accept an invitation to speak at the annual AACC Scientific Congress in Anaheim which began with the launch of their new name, the "Association for Diagnostics and Laboratory Medicine" (ADLM). The topic of my talk, *Appropriate test utilisation driving sustainability,* focused firstly on the downstream effects of inappropriate test utilisation including over-investigation of patients and patient harm, increased cost and the environmental impact of consuming large amounts of energy, chemicals and water whilst also generating staggering amounts of largely non-recyclable plastic waste. The second half of my talk then moved the focus to what we can we do to address appropriate test utilisation such as digital solutions to prevent unnecessary repeat testing, thus changing clinician behaviour and requesting patterns, and promoting diagnostic stewardship. My thanks go to Rob Shorten and the ACB Green Champions Group for their help in preparing the talk, and to the ADLM and their President Dr Shannon Haymond for their hospitality. It was an amazing experience to attend a conference and exhibition of 20,000 delegates and I look forward to welcoming their incoming President, Dr Octavia Peck-Palmer, to give the ACB-ADLM Transatlantic Award lecture at UKMedLab24, on her newest area of research in examining the role of Laboratory Medicine in reducing health disparities.

On 11 September a letter was sent jointly from the Presidents of the ACB, IBMS, RCPath and the Chair of the RCGP to The Rt Hon Steve Barclay MP on the marketing of laboratory tests directly to the public. This collaborative letter highlighted the patient safety issues

created by unregulated diagnostic tests and testing kits. Whilst recognising that the use of self-testing kits for monitoring long-term conditions has an evidence-base, the unregulated diagnostic testing market frequently lacks quality assurance and evidence regarding test development, and provides test data without professional support, leading to an increased burden on primary care to repeat any abnormal testing and provide appropriate interpretation.

Finally, I was delighted to welcome our new CEO, Victoria Logan, to the Association at the start of September. Victoria has already hit the ground running, taking the lead in our Executive Strategy day, the discussions at which will form the basis for our priorities and plans for the coming year. Tracy Davis has also joined the ACB staff team as our new Marketing and Communications Administrator, taking over from Ellen Donnison. I look forward to working with Victoria and Tracy over the coming months and I am sure you will join me in welcoming them both to the Association. ■

Kath Hayden, ACB President

ScheBo® • Biotech UK Limited

ScheBo® • Biotech now provides a choice of faecal elastase tests - which one is right for your laboratory?

ScheBo® • Pancreatic Elastase 1 Stool Test ELISA

Established non-invasive pancreatic exocrine function test

- The 'original' and fastest faecal elastase quantitative ELISA - just 60 minutes total incubation time
- Uses monoclonal antibodies - patients can continue 'enzyme therapy'
- Four standards and two controls, ready to use
- Manual tests or can be automated
- Convenient ScheBo® • Master Quick-Prep™ device available

25+ years experience faecal elastase experts

'Faecal elastase' has become established as the 'gold standard' non-invasive laboratory test for pancreatic exocrine function.

- Confirm or exclude pancreatic exocrine insufficiency
- Results within minutes
- Easy to perform
- Economical, even when testing individual samples
- Kit includes ScheBo® • Quick-Prep™ tubes for simple and convenient sample collection and extraction

Also

ScheBo® • Pancreas Elastase 1 Quick™

Rapid test of pancreatic exocrine function

To discuss your needs and for further information please contact:

ScheBo® • Biotech UK Limited, P.O. Box 320, Southampton, SO45 9BW, U.K.
Tel : 02380 018302 • E-mail : info@schebo.co.uk • www.schebo.co.uk

CEO Update

Thank you to everyone who has helped me feel very welcome already. I've had a fascinating first few weeks learning as much as I can about the huge range of work that the ACB covers.

A little bit about myself and the experience that I hope will be useful to the ACB – most recently I worked with the British Society for Rheumatology with responsibility for education, marketing and communications. I've also worked for a range of membership organisations including the NHS Confederation as well and for national charities and in publishing.

I feel fortunate to have joined the ACB at the beginning of a new business planning cycle. We recently had a constructive strategy workshop with the executive team, where we looked back on where the ACB has made the most impact in the past year, discussed where we might want to allocate more energy and resources in the coming year, and explored the significant challenges affecting everyone in the field of laboratory medicine. It's clear that top priorities on everyone's minds are finding ways to address the workforce crisis in the NHS, adapting to the rapid changes in patient self-testing, and preparing for the impact of AI and machine learning in our sector. Notably, when asked how we might work differently as an organisation, many emphasised the importance of amplifying our voice.

Our transition to the new name, the Association for Laboratory Medicine, and the new brand presents us with an

exciting opportunity to become the go-to hub for a wider range of laboratory professions and get better at celebrating our successes as an organisation. The ACB team is hard at work behind the scenes, ensuring that everything is in place for the big change that you will start to see in the new year.

I'm really delighted to join an organisation that genuinely values innovation, inclusiveness and caring for the planet. It's my job as Chief Executive to make sure we use these values to guide the decisions we make as an organisation.

I look forward to getting out and about to events and meeting many of you over the next few months. ■

Victoria Logan, CEO

RANDOX
QUALITY CONTROL

INTRODUCING THE NEW ACUSERA PRE-ECLAMPSIA CONTROLS

Help determine the precision of your test system with the new Acusera Pre-eclampsia controls

- Analytes - sFlt-1 | PIGF
- Liquid frozen for user convenience
- Human based serum ensuring a commutable sample matrix
- True third party control providing an unbiased assessment of performance
- 30 days open vial stability keeping waste & costs to a minimum
- Assayed target values provided
- 3 clinically relevant levels available

DESIGNED FOR USE WITH OUR ACUSERA 24.7 LIVE INTERLABORATORY DATA MANAGEMENT AND PEER GROUP REPORTING SOFTWARE

randox.com marketing@randox.com
Visit store.randox.com to buy directly from Randox today

Welcome to the October issue!

Welcome to the latest issue of *ACB News*. In this issue, we give a warm welcome to our new CEO, Victoria Logan.

We are also excited to announce the launch of another new column, ACB Green Champions, hosted by the ACB Green Champions Group. This column will be full of inspiration and advice on how to achieve Net Zero in our own laboratories and updates on what this group is doing to help the ACB **go green** and develop and promote best practice within our organisation and beyond. We hope you like it. We would like to thank Alison Jones from York and Scarborough Hospitals NHS Foundation Trust for providing the inaugural article. Thanks Alison! You can find out more about our Green Champions on the ACB website.

In addition, we have our first article from Katy Heaney for our Future Directions column plus a look back at the history of Clinical Biochemistry at Addenbrookes Hospital in Cambridge from Charles van Heyningen.

We also have an inspiring summary of the Whole Genomic Sequencing Course from one of the first cohort to attend, and Peadar McGing reminds us of what it is like to be on the receiving end of results for a change.

Finally, we have the second instalment of highlights from UKMedLab23, covering the sessions from day two of the conference.

Of course, we have all the regular features too! If there is anything else you would like to see featured in *ACB News*, please do let us know. We welcome feedback from our Members so drop us a line at editor.acbnews@acb.org.uk ■

Meet Tracy Davis, our new Marketing and Communications Administrator

Tracy joined us in August 2023. Coming from a corporate marketing and publishing background, she will be overseeing our website, emails and other marketing. Tracy will also be working on the plan for our upcoming rebrand.

She and her husband, Andrew, live in Peckham, London with their two cats Avon and Servalan – named after the baddies in the 80s sci-fi series Blake's 7! ■

Statement to Members

The Statement to Members issued in connection with the Union's annual return for the period ended 31 December 2022, as required by Section 32A of Trade Union and Labour Relations (Consolidation) Act 1992, can be viewed here. ■

NHS
Black Country Pathology Services

Enhanced liver fibrosis markers

ELF & PIIINP

- NPEX result reporting
- Rapid automated immunoassay service
- Clinical interpretation service

0121 507 5348
rajvindergarcha@nhs.net
www.bcpathology.org.uk
Clinical Biochemistry, City Hospital, Dudley Road, Birmingham B18 7QH
@BCPathology BCPathology Black Country Pathology TV News

BCPS

NHS Pathology Serving the Black Country

Provided by Sandwell and West Birmingham NHS Trust, The Dudley Group NHS Foundation Trust, The Royal Wolverhampton NHS Trust and Walsall Healthcare NHS Trust.

Birmingham Children's Hospital celebrates 100 years of Chemistry

This June, Birmingham Children's Hospital celebrated 100 years of Chemistry with a week of interactive activities, laboratory tours and a very sunny afternoon tea.

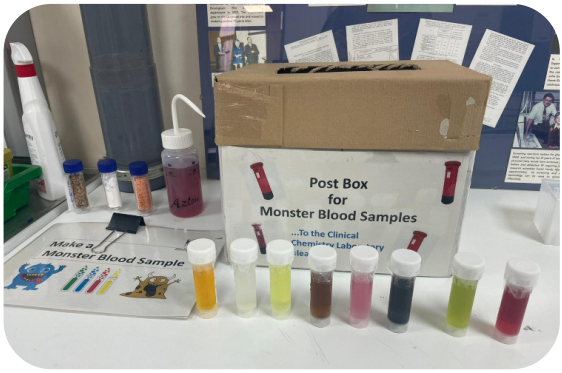
In 1923, a Chemist named Evelyn Hickmans was invited to establish a laboratory at Birmingham Children's Hospital. She was later part of the team who created a diet for a patient with phenylketonuria – the first time a child was successfully treated with this condition.

One hundred years on and the laboratory is a far cry from the original laboratory that Evelyn established, now full of shiny automated analysers, advanced mass spectrometers and a wonderfully diverse workforce.

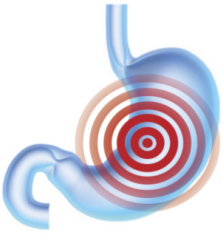
To celebrate this momentous birthday, we held interactive activities in our outpatients, chapel and conservatory. Patients and staff were invited to create 'monster blood samples' complete with requests forms, perform faecal occult blood testing on mocked up faecal samples, learn about chromatography with coloured pens and filter paper, and to find out about urinalysis using dipsticks, visual inspection and even a sniff test!

The laboratory also opened its doors to staff and patients with guided tours, expertly given by our lovely BSc students. The kids even got to take home their very own – and uncommonly clean – souvenir lab coat!

The sun shone down for our afternoon tea celebration, which welcomed both current and past members of the team, and a host of invitees from throughout the hospital. This was a wonderful opportunity to highlight the amazing work done by the laboratory, and to reflect on the journey that will no doubt mirror so many laboratories up and down the country, with developments in technology, automation and IT. We can't wait to see what the next 100 years will bring! ■



GastroPanel®

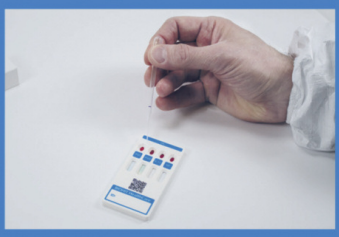


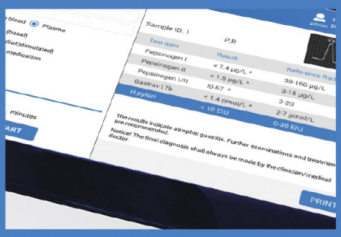
New Rapid test to triage gastroscopy referrals

Atrophic gastritis is chronic stomach condition that is a priority for gastroscopy referral and endoscopic surveillance based on the risk of gastric adenocarcinoma. It is also associated with iron deficiency anaemia (IDA), pernicious anaemia (PA), and nutrient deficiencies.

GastroPanel Quick Test NT identifies atrophic gastritis before endoscopy, enabling patients awaiting referral to be triaged based on risk. Testing dyspeptic patients using GastroPanel® can help to identify or rule-out atrophic gastritis to alleviate patient concerns and waiting list pressures associated with gastroscopy referrals, by aligning clinical resources with patients' needs.

- Select cases for gastroscopy according to risk
- Aid diagnosis of atrophic gastritis, *H. pylori*, and acid dysregulation
- Investigate the cause of IDA, PA, and nutrient deficiencies
- Ease the burden on overstretched gastroscopy services
- Finger-prick whole blood sample (POCT) or EDTA plasma (Lab)





Learn more at www.biohithealthcare.co.uk/gastropanelQT

BIOHIT HealthCare
Innovating for Health

Phone +44 151 550 4 550
info@biohithealthcare.co.uk
www.biohithealthcare.co.uk

Marketing of laboratory tests direct to the public

On the 11 September 2023, the ACB was a co-signatory to a letter sent to the Secretary of State for Health and Social Care, the Rt Hon Steve Barclay MP, regarding the unregulated marketing of diagnostic tests.

In conjuction with the Institute of Biomedical Science, the Royal College of Pathologists and the Royal College of General Practitioners, we have asked the Government to supply appropriate support and regulation of this market.

You can read the letter here. ■

Hurray for normal

Dr Peadar McGing, Retired Principal Clinical Biochemist, Mater Misericordiae University Hospital, Dublin, Ireland

Plasma sodium = 141 mmol/L. Yippee!

I didn't expect to ever get excited over a sodium of 141. But it has happened. Relief too.

I have never underestimated the importance of a blood test result in the 'normal' range as being of significance in patient treatment. I've included it in lectures; I've even written an article published in the *Irish Medical News* many years ago. But this was different. This time, I was the patient.

I often tell Trainees and students that all results are in context. Sometimes a 'normal' result is very important. For me it meant I could start having whatever volume of liquid I wanted, full mugs of tea at a meal instead of a measly half cup. To give some context, I had developed SIADH and was on a liquid intake of initially less than one litre and then a few days of less than 750 mL per day. My SIADH was not unexpected as it was a side effect of the trans-sphenoidal surgery I'd undergone two weeks previously. Leaving the hospital my sodium was 141, but on monitoring testing as an out-patient a few days later it fell to 134, and then to 132 and even on initial fluid restriction down to 130. Now it was thankfully back up to its usual level and so I could enjoy my tea again.

It's nice to understand health-care from the patient point of view. However, this level of understanding I had happily avoided until now. But whenever you find yourself churning through those hundreds of renal and other routine profiles, don't ever feel that all those normal ones don't matter. They may matter a lot to someone.

A plasma sodium of 141 meant a lot to me. ■

Publication Deadlines

To guarantee publication, please submit your article by the 1st of the preceding month (i.e. 1 November for December 2023 issue) to: **editor.acbnews@acb.org.uk**

We try to be as flexible as possible and will accept articles up to the 20th to be published if space allows. Otherwise they will be held over to the next issue. If we are aware that articles are imminent, this gives us more flexibility and we can reserve space in anticipation. If in doubt, please contact: Gina Frederick, Lead Editor, via the above e-mail.

CORE DIAGNOSTICS

Abbott

THE KEY TO RECOVERY IS OFTEN FAST, ACCURATE DIAGNOSIS

Discover how our end-to-end diagnostics solutions can help you achieve measurably better healthcare performance

corelaboratory.abbott

Events update

November is proving to be a busy month for events with both regional and national events taking place.

ACB South West & Wessex Region kick off the month on 3 November with a virtual event looking at new developments in renal disease. The event will start at 11.00am, break for lunch at 12.30pm for an hour, then reconvene at 1.30pm for the afternoon session which will then close at 3.00pm. Talks will include: The kidney failure risk equation, Lessons from the UK NEQAS AKI and CKD scheme and functional iron deficiency.

On 9 November, the ACB Office will be hosting the **ACB Trainees Day.** The day will focus on the statistical tools that are available to researchers and provide guidance to trainees regarding the appropriate statistical analysis for their projects. The agenda will include exciting presentations that will support both early and veteran researchers, as well as information on the funding opportunities available and the Higher Specialist Scientist Training (HSST).

The the Royal College of Pathologists will be the venue for the **ACB National Audit Day** on 10 November. The day will feature sessions on troponin, monoclonal gammopathies, minimal residual disease and myeloma. Tickets are £100 for ACB Members and £150 for non-Members.

On 21 November **ACB Scotland** will hold a one day in-person meeting at The Barracks Conference Centre, Stirling. Sessions will include management and transgender services and laboratory management. This event is free to all ACB Members.

Finally, on 28 November, ACB West Midlands will hold an in-person meeting in conjunction with MetbioNet. The event will be held at The Exchange, Centenary Square, Birmingham and is free to ACB Members. Please note, bookings for this event will close on 13 November. ■

NB: Some ACB resources are member-only, so you may be asked to log in

UKMedLab meeting reports: part 2

As previously reported, UKMedLab23 was held at the Royal Armouries in Leeds on 10-12 June and was a celebration of 70 years of the ACB. As part of this celebration, each of our Regions was invited to host a parallel session at the conference. The Regions stepped up and met this challenge with fantastic results, as reflected in delegate feedback.

Day two of the conference was met with another sunny day in Leeds and despite the energetic dancing and networking of the previous evening, delegates ensured that they were up with the larks; primed and ready for another day filled with interesting topics.

This edition of *ACB News* highlights some of the sessions that were given on day two of the conference.

UKMedLab24 will be held at the Brighton Metropole on 10-12 June 2024. Thank you to Sally Benton who has taken on the task of Scientific Content Development Chair and has developed a great team to support her to build the programme, it is already looking pretty fabulous. You can expect sessions on LCMS, Paediatrics, Specialist Endocrine, Artificial Intelligence and Faecal testing, to name but a few.

Of course, there will also be the ever-popular interactive Clinical Cases and Medal Award sessions. We will be opening portals for poster abstracts, the Laboratory Medicine Foundations Award and the Impact Award very soon.

UKMedLab24
Brighton • 10-12 June

Sudoku

This month's puzzle

			R		H			
	M	T				I	C	
	Y						T	
Y				E				H
			M		S			
R				Y				M
	C			M			E	
	S	I				Y	H	
			C		I			

Solution for August

R	Y	I	H	E	T	M	S	C
E	T	S	R	M	C	Y	I	H
C	M	H	I	S	Y	T	R	E
I	S	Y	E	T	R	H	C	M
T	E	C	M	H	S	R	Y	I
M	H	R	Y	C	I	E	T	S
Y	R	E	C	I	M	S	H	T
S	C	M	T	Y	H	I	E	R
H	I	T	S	R	E	C	M	Y

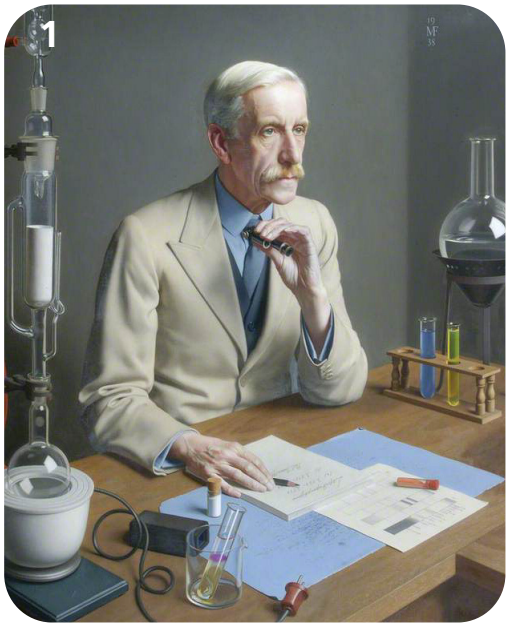
I remember when . . .

Twentieth century roots of Clinical Biochemistry in Cambridge

by Charles van Heyningen

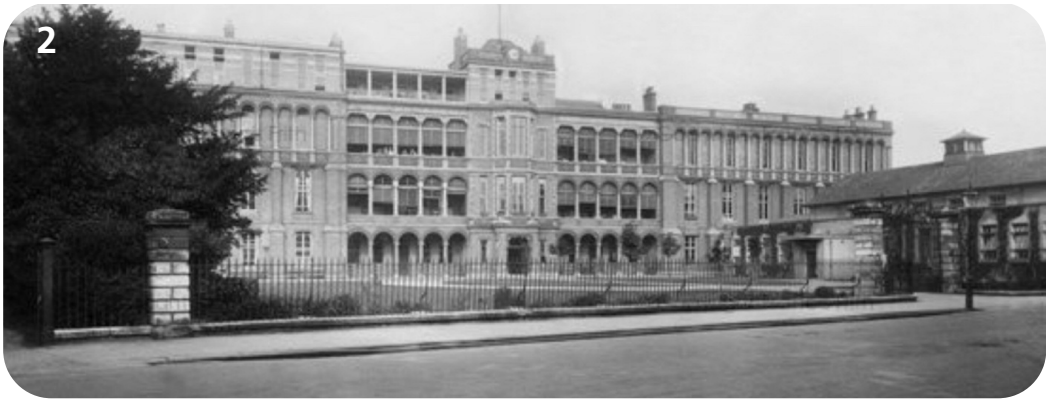
At the end of the nineteenth century a new science emerged: the study of the chemistry of living organisms, otherwise known as biological chemistry, which was to evolve into Biochemistry. The first University departments bearing that name and hence being chaired by a professor were established in Liverpool and at University College, London. The first of these, in Liverpool, was established in 1902 and headed by Benjamin Moore who was a founder of the *Biochemical Journal and Biochemical Society* and wrote a book on *The Origin and Nature of Life* (1913).

Frederick Gowland Hopkins began his Cambridge career in 1898 by teaching physiology and anatomy. In 1902 the biological chemistry department in Liverpool offered him a Chair in Biochemistry, whereupon the physiologists made another critical contribution by persuading the University of Cambridge to make him a Reader. In 1906 the University established a Professorship of Biological Chemistry, first held by the Protozoologist G.H.F. Nuttall. In 1909 the Special Board for Medicine agreed to propose a personal Chair in Biochemistry to which Hopkins was elected in 1914. He was later awarded the Nobel Prize for the discovery of growth-stimulating vitamins, and he was the first to isolate the amino acid tryptophan.


1

The years between 1914 and 1924 saw soaring numbers of biochemistry students, towards 500 per term, and much debate over the inclusion of Biochemistry as an undergraduate examination subject.
In 1921 the University introduced degrees for women, encouraged no doubt by Hopkins who had always been a keen supporter of women in science and had taken many women on in the department by the early 1920s. His opinion clearly conflicted with that of the writer for Chemistry and Industry who observed: *'It (the new institute) is probably too much the resort of women students, who cannot be expected to bring to the study of the subject that breadth and originality of outlook and the acute powers of observation that are essential to progress.'*

Addenbrooke's Hospital in Cambridge opened in 1766 and was expanded in the 19th century but pathology laboratories

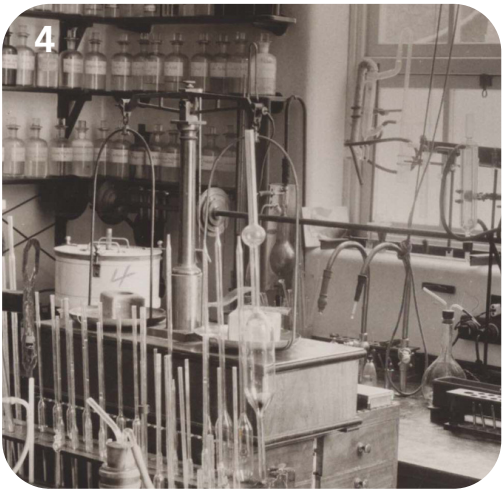

2

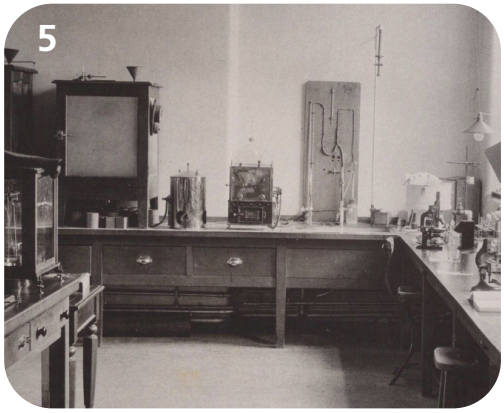
were not added until 1914. The first clinical pathologist at Addenbrookes was Walter Malden (1908-1918). He was Editor of the journal '*Medical World*' and he attended the hospital for two and a half hours every weekday.

The first honorary Clinical Biochemist was Charles Wolf from 1921 to 1937. He was born in Canada where he studied medicine and later studied in Germany and in Cambridge. He had previously published a book on urine analysis and physiological chemistry when working as an instructor in New York and was later involved in research on cystinuria, estimation of lactic acid, tumour markers, sperm motility and the Wassermann reaction.

The original Addenbrooke's Hospital biochemical laboratory was used for making only 70 biochemical examinations in 1921 and after Wolf's appointment the workload increased rapidly to 1000 examinations in 1924. He spent about £1000 of his own resources on equipment and paid an unqualified assistant £4 per week. By 1937 when he retired, nearly 2,500 investigations were made involving 10,000 analyses during the year. Readily estimated blood tests were urea, creatine,


3


4



uric acid, glucose, carbon dioxide combining power, phosphate, calcium, bilirubin and chloride. The most complicated apparatus was the manually operated Van Slyke volumetric blood gas apparatus used to measure carbon dioxide combining power.

Images shown are:

1 Painting of F. G. Hopkins in 1938. His hand rests on a pad headed 'Lepidoporphyrin', a term coined by him for the pigment found in butterfly wings
2 Addenbrooke's Hospital in 1923
3 First Clinical Pathologist Walter Malden, appointed in 1908
4 The hospital Biochemistry laboratory in 1937
5 The hospital Pathological laboratory showing Van Slyke manometric apparatus and microscopes in 1937
6 Biochemists H. E. Tunnicliffe and J. H. Quastel making mercaptans on the roof of the Balfour Biological laboratory in Cambridge, c.1914. Mercaptans include foul smelling toxic chemicals used to synthesise methionine ■

ACB welcomes new members

The ACB is proud to introduce the following new members who have joined us since the last edition of *ACB News.* Please extend a warm welcome to:

- Dr Ali Ahmed, Specialty Registrar – Chemical Pathology, Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield
- Mrs Ngozi Akoje, Student, Manchester Metropolitan University, Manchester
- Dr Fawaz Ali, Registrar Chemical Pathology, University Hospital of Wales, Cardiff
- Dr Deema Alokaili, Microbiology international Trainee, Imperial College Healthcare NHS Trust, London
- Miss Elin Davies, Immunology Service Manager, BCUHB, Bangor
- Dr Harriet Gooch, Trainee Clinical Scientist, East Kent Hospitals NHS Trust, Ashford
- Mr Ali Haider, Student, University Institute of Medical Lab Technology, Lahore
- Mr Adam Henderson, Trainee Clinical Scientist, NHS Tayside, Dundee
- Miss Saliha Khan, Trainee Clinical Scientist, St George's University Hospitals NHS Foundation Trust, London
- Miss Amber Knapp-Wilson, Medical Student, University of Bristol, Bristol
- Dr Ian Lowrie, Director of Quality & Compliance and Laboratory Director, National Institute for Health Research, Milton Keynes
- Miss Hannah Marlow, Trainee Clinical Biochemist, Norfolk and Norwich University Hospitals NHS Foundation Trust, Norfolk
- Dr Sophie May, Clinical Scientist, UK Health Security Agency (UKHSA), Cambridge
- Dr Philippa May, Consultant Clinical Scientist, Great Ormond Street Hospital NHS Foundation Trust, London
- Dr Tina Mazaheri, King's College Hospital NHS Foundation Trust, London
- Dr Jayant Mehta, Director of Sub-Fertility Laboratory and Quality Control Manager, Queen's Hospital, Romford
- Mr Gaurav Nagar, Student, University of Essex, Colchester
- Mr Okanda Ogbonda, Trainee Clinical Scientist, University Hospitals Plymouth NHS Foundation Trust, Plymouth
- Mr Chima Onwuchekwa, Student, Manchester Metropolitan University, Manchester
- Miss Vanessa Owusu-Yeboah, Trainee Clinical Biochemist, Portsmouth Hospital NHS Trust, Cosham
- Mrs Catherine Padget, Senior Clinical Scientist, NHS RUH Bath, Bath
- Ms Kate Pickering, Clinical Scientist, Lancashire Teaching Hospitals NHS Foundation Trust, Preston
- Dr Lizaveta Radzevich, Clinical Biochemist, Warsaw, Poland
- Dr Matthew Waite, Registrar in Metabolic Medicine and Chemical Pathology, Imperial College Healthcare NHS Trust, London
- Mrs Michelle Whittle, Clinical Scientist, University Hospitals of Leicester NHS Trust, Leicester
- Dr Tarek Ahmed Ahmed Zidan, Laboratory Director/Clinical Laboratory Scientist, Hayat National Hospital, Riyadh, Saudi Arabia ■

LAB TESTS ONLINE UK

Your Trusted Guide

Peer Reviewed • Non-Commercial • Patient Centred

Produced by The Association for Clinical Biochemistry & Laboratory Medicine

With support from The Royal College of Pathologists — Pathology: the science behind the cure; IBMS

Lab Tests Online-UK is a non-commercial website written by practising laboratory medics and scientists with lay editorial review of content to ensure its suitability. The aim of the website is to help patients and the public, including healthcare professionals, understand the many clinical laboratory tests that are used in diagnosis, monitoring and treatment of disease.

LTO-UK fact of the month

We've been out and about this year. We were at UKMedLab23 in Leeds and IBMS Congress in Birmingham and will be at the RCGP Conference in Glasgow this month. If you're interested in helping out at future meetings, please contact us at the email address below.

Letting patients know we're here!

Making patients aware of the LTOL site is one of our most important tasks. As we mention on this page, we regularly attend conferences and other events to speak to our colleagues from primary care and hospitals to tell them about the site so they can inform their patients of the great resources we have available online. However, nothing beats targeting the patient directly and, to this effect, we are always very busy behind the scenes working with the companies who run the information systems used by healthcare professionals to receive lab reports and report them on to patients.

As I'm sure everyone reading this is aware, all patients have had the right to access their medical records for several years now. Being confronted with a barrage of numbers and reference ranges can be quite daunting. We have been talking with companies like SystmOne, INPS Vision and Patient Knows Best who now include links to relevant LTOL pages in the lab reports as seen by patients. This work with GP systems companies has been ongoing for some time and is so effective that around 25% of hits to the site are directed from integrated links which are embedded in lab test reports according to context (see example below).

These links have been available for a number of years now, but we have some additional exciting news in that links to LTOL pages are going to be included in the NHS App, which is the mechanism planned to be the portal for patients to access all their medical information. At the moment, a limited number of tests have been set up, but, if this is successful, there will be further tests added as we go forward. We're in the process of finalising this before it goes live, but it will be another string to our bow and another way patients can access the website.

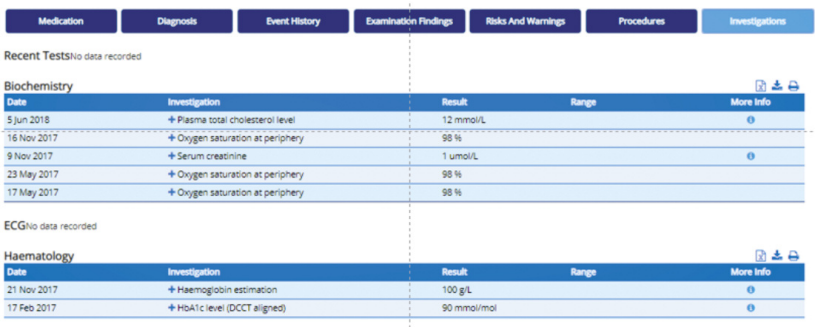
How to get involved

Join the editorial team

If you are interested in contributing to the vital work of the editorial team to keep the website up-to-date and to introduce new material please contact us for more information.

Become a Lab Tests Online-UK champion

Join our champions and promote LTOL-UK locally and nationally. Champion packs provide a great starting point with ideas and marketing materials, for more information or to join our champions please contact us.



Example of a patient lab report in the INPS Vision system. The links for more info in the final column go direct to the relevant LTO page

Email: labtestsonlineuk@acb.org.uk Website: labtestsonline.org.uk Follow us:

Scientific curiosity; keep the cat alive

Katy Heaney, POCT Specialty Lead, Consultant Biochemist, Berkshire & Surrey Pathology Services

When was the last time you did some research?

For a long time in my career I was caught up on the idea that if what I was doing wasn't high-end publication material or a new test development then I was doing research, and in turn what a disappointment this was for my Scientist title, as surely this should be a primary aim of my role. I concluded for a long time that I just didn't like research; the mammoth task of ethics approval applications and heaven-forbid grant applications just wasn't for me.

As my journey through the career path has continued I have learnt to recognise the value of a range of activities that contribute to the furthering of our profession and healthcare, and therefore are research. I say this not to dumb down the achievements of those who have developed new assays, but rather to help those of us not working in those areas to recognise the contributions we make.

Doing research where research is needed

In my mind, the power of the armchair audit was a phrase I put down to Professor Erik Kilpatrick; the use of our laboratory data to provide evidence, to monitor change and ultimately spark quality improvement. I recommend if you haven't read it; *The Hitchhiker's Guide to Research in Clinical Biochemistry; Clin Biochem Rev* 2010 Feb; 31(1): 25-28 as an excellent thought provoking piece. As a group, I think healthcare sciences underestimate our opportunity to look at population data and influence healthcare pathways. While we have been limited by a lack of accompanying requesting data, improvements in EPR systems should give us more opportunity to understand patterns in requesting and results. Data pulls from our lab systems are one thing, an EPR data pull including laboratory results can be much more powerful.

Would we do more research if we were under less pressure?

Curiosity leads me to ponder; how do we as a profession feel about research? Where is it on our priority list? Local opportunities for research can feel slim when working at a non-teaching hospital, and the day-to-day duties take up 90% of our time. It will often fall back on our passion, tenacity and curiosity to drive us into finding time for contributing toward discovery and compiling evidence of best practice. I have had the pleasure of working with and meeting with some exceptional scientists in the last few years whose roles are closer to 90% research and 10% day-to-day service. Most are self grown into these roles and with years of hard graft have grown themselves teams of academics. I spoke with Dr Owen Driskell, Deputy HSST Training Programme Director at the National School of Healthcare Science who highlights the focus being turned on the currently underdeveloped Clinical Academic career path to reduce barriers and allow NHS scientists to explore their research passion. Owen recommends for anyone looking to lead and partake in more research to start by looking at local opportunities, get in touch with your Trust

research teams to explore projects with them. He emphasises that being open to working with others is key too; research focused only on participants in and around research hubs can be underpowered and inherently biased, so offering oneself to support data gathering or partake in studies originating from other centres gets you involved in research and can improve the power of studies and combat that bias. This principle was recently demonstrated during the COVID-19 pandemic with studies like the SIREN study in healthcare workers. We both recommend the podcast series *'Leading'* episode 28, July 2023, an interview with Paul Nurse, British Geneticist and Nobel Laureate for Physiology, discussing the future of British science for some more food for thought.

What is our research exposure?

There is something so formative about the early parts of our career. Exposure to specialisms, shadowing consultants, experiencing MDTs are critical in my opinion, and I would like to add to this working alongside and experiencing the world of clinical academics. I was lucky enough to meet face-to-face with Dr Jane Freeman and Dr Kerrie Davies at the Healthcare Infection Research Group in Leeds, in June this year, and spend an afternoon touring their laboratory gut model; an incredible piece of equipment that allows them to get a better understanding of gut flora changes when exposed to antibiotics and infectious agents. The gut requires feeding, monitoring and daily documentation, with a big team supporting the work, and is in the process of being miniaturised to allow them to expand their studies. Setups such as this are not for everyone, we don't all wish to be a professor! However, understanding their research leads me to consider how other services can contribute pieces of the puzzle and how essential it is that we give our incoming scientists knowledge of these career paths so that they don't feel they need to leave our profession to be integral to new discoveries. A challenge to our education leads is to please build in opportunities for research exposure, beyond that of just an MSc project, to help grow our Trainees appetites.

I want to do it, but can I do it?

We can all list reasons why we couldn't; conflicting priorities, funding. I would hope there are not job descriptions out there without mention of research. If there are, is it time to question this? Consider what your contribution could be, have a goal; one poster published in 2024 perhaps or double what you did this year? Collaborate; virtual meetings open a world of opportunity for a cuppa with a colleague about an idea you wish to explore.

Keep being curious. ■

The chemical gut; Dr Kerry Davies and Dr Jane Freeman

Deacon's Challenge Revisited – No 27 Answer

A 60 mg dose of a drug is given to a male experimental subject who weighs 80 kg. Assuming that the drug is completely absorbed and distributed evenly throughout the total body water, estimate the potential peak plasma level. If the drug were distributed only within the extracellular compartment, what would the plasma level be?

MRCPath, November 2003

When a bolus of a drug is given, then provided it is totally absorbed and not excreted or metabolised then the volume of distribution (V_D) is obtained by dividing the amount of drug given by its plasma concentration. i.e.

$$V_D = \frac{\text{Dose given}}{\text{Plasma concentration}}$$

If the volume of distribution and the dose given are both known, then this equation can be rearranged to calculate the plasma concentration:

$$\text{Plasma concentration} = \frac{\text{Dose given}}{V_D}$$

In this question we are told the dose given (60 mg) and asked to calculate the plasma concentration assuming different volumes of distribution:

If the drug is distributed throughout body water, then V_D is the volume of total body water (TBW).

The body's total water content is approximately 60% by weight.

Therefore for an 80 kg man, total body water = $80 \times \frac{60}{100} = 48$ Litres (assuming that 1 kg = 1 L)

so that plasma concentration = $\frac{60}{48} = 1.25$ mg/L

If the drug is distributed throughout the extracellular fluid (ECF) only, the V_D is the volume of the ECF.

Approximately a third of the total body water is contained in the ECF; therefore for an 80 kg man:

$$\text{ECF Vol (L)} = \frac{\text{TBW Vol (L)}}{3} = \frac{48}{3} = 16 \text{ L}$$

so that plasma concentration = $\frac{60}{16} =$ **3.75 mg/L**

Question 28

The incidence of the Gilbert genotype is common in the US and Europe. If the incidence of the variant bilirubin-UGT (UGT1A1) promoter associated with Gilbert's in a population is 9%, what proportion of the population carry at least one copy of the variant promoter? (Assume Hardy-Weinberg equilibrium applies).

The Diggle Microbiology Challenge

These multiple-choice questions, set by Dr Mathew Diggle, are designed with Trainees in mind and will help with preparation for the Microbiology Part 1 FRCPath exam.

Question 37 from August's ACB News

The following are true or false statements regarding Rubella infection:

A. It can be asymptomatic.
B. It may be indistinguishable from parvovirus B19.
C. It can have the most serious side effects when occurring in a woman in the third trimester of pregnancy.
D. It is usually preventable by vaccination.
E. It may be acquired by having close contact with an infant with congenital rubella syndrome.

Answers

A. True – Some adults may also have a headache, pink eye and general discomfort before the rash appears. About 25 to 50% of people infected with rubella will not experience any symptoms.
B. True – Clinically, rubella is indistinguishable from febrile rash illnesses caused by measles, parvovirus B19, human herpes virus 6 (HHV6), Coxsackie virus, ECHO virus, adenovirus and dengue virus, and laboratory confirmation is required for diagnosis unless there is an epidemiological link to a confirmed case.
C. False – The risk to the foetus of primary rubella in the first 16 weeks gestation is substantial, with major and varied congenital abnormalities being associated with infection in the first trimester. Rubella infection between 16- and 20-weeks' gestation is associated with a minimal risk of deafness only and rubella prior to the estimated date of conception or after 20 weeks carries no documented risk.
D. True – Getting vaccinated is the best way to protect yourself against rubella. Rubella vaccine (MMR) is routinely given to children in the UK. The vaccine is given in two doses: children usually get the first dose when they are one year old and the second dose when they are three years and four months old.
E. True – Children with congenital rubella syndrome should be considered contagious until at least one year of age or until two clinical specimens obtained one month apart are negative for rubella virus by RT-PCR, either real-time or conventional; culture is also acceptable.

Question 38

Which of the following is bacteriostatic but not bactericidal? What are the different actions of each of the antimicrobials listed?

A. Kanamycin
B. Chloramphenicol
C. Cephaloridine
D. Benzylpenicillin
E. Colistin

The answer to Question 38 will appear in the next issue of ACB News – enjoy! ■

Whole Genomic Sequencing and Infection Course

Amy Read, HSST (Microbiology), Gloucestershire Hospitals NHS Trust; with additional content from Major Colin Hudson, HSST (Microbiology), Frimley Park Hospital

In April 2023, I was fortunate to be in the first cohort to attend the Whole Genome Sequencing (WGS) and Infection course run by the Association for Clinical Biochemistry and Laboratory Medicine (ACB) in partnership with Great Ormond Street Hospital Learning Academy (GLA) for Health Education England (HEE). This short course was delivered in person over five days at the beautiful Goodenough College near Kings Cross, London. The course aimed to help attendees understand how WGS and other molecular technologies can be implemented in Infection services and the impact results generated can have on patient pathways and clinical management.

Expectations and anticipation

I applied to attend the course in anticipation of having to implement additional molecular technologies into the routine workflows within the Clinical Microbiology Laboratory at Gloucester Royal Hospital. Having been a Biomedical Scientist for 20 years and completing an MSc in Medical Microbiology and recently embarking on the Higher Specialist Scientific Training (HSST) course, I had a good understanding of current molecular technologies and some idea of newer technologies on the horizon prior to starting the course. Working in a medium sized NHS Microbiology laboratory, many molecular techniques such as WGS and 16S PCR are referred to reference laboratories, thus resulting in me having limited practical experience of genomics. However, with molecular technologies becoming smaller, less expensive and workflows becoming simplified, it is now feasible that these molecular techniques will be moving into regional microbiology laboratories in the next 5-10 years. I hoped that attending this course would provide me with the necessary skills to successfully implement molecular techniques into a laboratory and the Infection service.

The course was advertised to attract a diverse group of attendees including Medical Microbiology and Infectious Disease Doctors, Biomedical Scientists, Clinical Scientists, HSST Trainees, Infection Control Practitioners, Nurses, academics and representatives from private laboratories. Given the wide range of professions expected in the intake, I was apprehensive that I may be out of my depth but I was also interested to see how the content would be presented to ensure it was pitched at the right level for attendees.

Prior to the course, a pre-course questionnaire was sent out. The questionnaire asked attendees to collect information relating to local molecular and genomic testing currently available locally, including examples of reports (local or reference laboratory), turnaround times and floor plans of departments showing siting of current molecular

analysers. Collecting all the requested information took some time but was worth the effort as it helped me to understand the current landscape within my local service and thankfully all the information was used within the course teaching.

Delivery of the Course – content, group work and feedback

On arrival on the first day, it became clear that we would be doing plenty of group work over the course of the week as the seating was on tables of 6-8 instead of the lecture hall arrangement I had expected. After introductions and ice breakers, it was evident that the course had attracted the diversity of attendees that the course organisers had hoped for. This variety of backgrounds and experience provided a range of perspectives and opinions, which proved a valuable resource as the course continued.

In the morning sessions, content was delivered primarily through presentations from those that have successfully implemented genomic and molecular techniques into their services. There were also examples of the impact WGS data is already having on complex diagnoses, Infection Prevention and Control and outbreak tracing. Speakers were comprised of experts working in UKHSA, Public Health and other specialist centres such as Great Ormond Street Hospital. I would encourage future attendees to do the pre-reading set for the course around genomic technologies as there was little time in the syllabus to cover the basics of each methodology and there was an assumed level of prior knowledge from speakers.

Some of the morning presentations were interactive but the majority of the practical group work was done in the afternoon sessions after a fantastic lunch hosted by the College. Those in attendance were placed in different groups on a daily basis; this provided variety and facilitators ensured groups

Dr Derren Ready delivering a workshop on 'Decision making during an outbreak investigation'

were balanced to include all professions in attendance. I found this to be really useful, particularly as I had met several individuals on the course previously and it could have been easy to stay working with those I already knew. I am glad the groups changed as had I remained with individuals with backgrounds similar to mine, I would have missed out on the experience of learning from others with differing knowledge and perspectives. The afternoon sessions focussed on the practical implications of introducing a genomic test, breaking down the whole implementation process into fundamental steps. Each day we moved on to the next stage of the implementation process, moving from pre-analytical considerations (built environment, sample collection, transport, storage requirements etc) to analytics (throughput, assays/technology etc) and post-analytical factors (bioinformatics, reporting, clinical interpretation etc). The variety of experiential knowledge of those facilitating the course, the expert speakers and the attendees resulted in a real breadth of perspectives and options which was extremely valuable and this sharing of expertise benefited all attending. Several sessions stood out for me. Developing a floor plan for a new molecular/genomic suite was extremely challenging for me. This session highlighted my lack of practical exposure to these technologies but by talking through the task with the facilitators and fellow attendees, I gained an understanding of the requirement for the built environment to be specific for the assays to be performed and the importance for spaces to be able to be adaptable in order to allow expansion over time for future-proofing of genomic/molecular services. The second session that stood out for me was looking at reports generated by different laboratories for a variety of molecular tests. This session emphasised that whilst we can produce detailed genomic results, if the result is not meaningful to the end user or doesn't directly impact patient care then the report and assay is obsolete. It highlighted the need to provide clear interpretation of complex results so the result can be understood and utilised effectively. Narrative reporting is important throughout microbiology to provide context for the user interpreting the results provided by the laboratory and reviewing these reports made me reflect on how we currently issue reports locally and where we could improve clarity.

Throughout the five days, the facilitating team were excellent, striving to keep everyone engaged and included. The team were organised, approachable and willing to answer any questions posed.

I attended the first iteration of this course with further face-to-face and virtual courses planned throughout this year. As this was the first run through of the course there was a focus on feedback, with plenty of opportunities each day to highlight those topics and sessions that worked well and areas that needed further explanation and possible revision. I would say that one area for improvement was the amount of group work proposed. Whilst my cohort was able to get through most of the planned work, it was an ambitious schedule. Given the focus on feedback and reflection I am sure facilitators will be considered for further courses.

"I am now primed and ready to face the venture of implementing a molecular workflow into my service."

Delegates were encouraged to work together to tackle the afternoon activities, sharing their expertise for the benefit of all

Future implications for course learning

This was an excellent course and I gained practical and theoretical knowledge which will be invaluable in my current role. The course provided me with insight as to how to implement WGS technologies when they are available to be run in-house in regional laboratories. Although I was initially apprehensive that I would be out of my depth, the diversity of backgrounds and prior experience meant that everyone had an area they were stronger in which resulted in a rounded experience for everyone attending.

I finished this course feeling more informed, less scared of genomics and WGS and ready to face the venture of implementing a molecular workflow into my service. There were several sessions that provided skills that could be utilised to progress current service and quality improvements outside the scope of genomics such as process mapping, building business cases and inter-departmental team working. Importantly, I also left this course with some new email addresses and contacts. There was a real spirit of collaboration on the course built through the group work and hopefully this will continue as we endeavour to implement genomics and molecular techniques in our local settings.

In summary, I would definitely recommend this course to others as I found it really valuable. I would encourage those who do attend to fully participate in the group work as this was the most rewarding part of the course for me. ■

Climate change and Net Zero – the basics

Alison Jones, Consultant Clinical Biochemist, York and Scarborough Hospitals NHS Foundation Trust

Climate change[1]

Our planet is getting hotter, with global average temperatures now 1.2°C higher than in the pre-industrial era. 1.2°C doesn't sound like much, but the reality is that we're already feeling the effects of incremental warming, including erratic weather patterns – such as heatwaves, floods and severe storms – loss of polar ice, acidification of our oceans and rising sea levels.

Global temperatures are on track to increase by as much as 2.7°C by the year 2100 based on current policies worldwide, which could render parts of the planet uninhabitable.

How can we prevent climate change?[1]

In the Paris Agreement of 2015, global governments recognised that warming of the earth must be limited to well below a 2°C increase and ideally not more than 1.5°C above pre-industrial levels. In order to limit this global warming, a significant reduction of greenhouse gas emissions, such as CO_2, will be required within a set period.

That's where Net Zero comes in; by ensuring that the amount of greenhouse gas emissions being released into the atmosphere are equal to the amount being removed from it, we'll be

State of the Climate in 2018 shows accelerating climate change impacts
© World Meteorological Organization

helping to significantly reduce the amount of harmful emissions that contribute to global warming.

The 2021 Glasgow Climate Pact, forged at the COP26 climate change conference, recognised that reaching Net Zero emissions by 2050 is essential and the key to keeping temperatures to 1.5°C of warming, with all countries involved pledging to pursue this limit.

What does "Net Zero" actually mean?[2]

The term "Net Zero" means achieving a balance between the carbon emitted into the atmosphere, and the carbon removed from it. This balance – or "Net Zero" – will happen when the amount of carbon we add to the atmosphere is no more than the amount removed.

To reach Net Zero, emissions from homes, transport, agriculture and industry will need to be cut. In other words, these sectors will have to reduce the amount of carbon they put into the atmosphere.

Residual emissions will need to be removed from the atmosphere, either by changing how we use our land so it can absorb more carbon dioxide, or by being extracted directly through technologies known as carbon capture, usage and storage.

The ACB Green Champions group was formed in late 2022 in recognition of the need for diagnostic laboratories to support the move towards a Net Zero NHS. Clinical laboratories process large numbers of samples, consume significant amounts of energy and produce staggering amounts of plastic waste. Our aim is to develop and promote best practices with ACB Members and beyond, addressing some of these lab inefficiencies affecting the environment as a whole. We want environmental sustainability to be embedded into diagnostic laboratories.

What can I do?

We can all play our part in creating a Net Zero NHS by reducing waste and saving energy.

SWITCH IT OFF

One of the simplest methods for reducing energy consumption is to switch off lights, PCs and other electrical equipment at the end of the day or when not in use. Electrical equipment left in 'standby' mode continues to draw small amounts of electricity, so-called 'Vampire Devices'. PCs, printers and scanners are classic examples, as well as televisions, gaming devices, speakers and chargers in your home. Think about items that don't need to stay switched on 24/7 and get into the habit of turning them off when not in use.

PCs: Shut down PCs that are not needed to run equipment at the end of the day. Not only will this enable all necessary updates to be installed, it could save up to 64 kWh of energy over a year – enough to charge a first generation Nissan Leaf car one and a half times, and drive almost 240 miles! At current domestic electricity rates, this is equivalent to around £20 a year per PC.

A PC in 'working' mode can use between 30 and 300 watts per hour. In 'sleep' mode, it uses between 3 and 10 watts per hour. Check the sleep setting on your PC and ensure it is active to optimise energy saving throughout the working day.

Monitors: Remember to turn off your monitors overnight. In one year this could save over 5 kWh of electricity, which is enough to run an electric oven for over two hours (almost five hours, if you have two monitors).

Try turning down the brightness on your PC monitor to 70%. You're unlikely to notice a difference. This can save up to 20% of the energy used by the monitor.

Lights: Turn off lights in offices when you leave for the day. Consider if lights need to be on all day if there are large windows and adequate sunlight for you to work.

Turn off lights in store rooms and other rooms, offices and labs not permanently occupied when you leave.

Laboratory equipment: Turning off equipment when not in use or at the end of the working day may take a little thought. Much of our equipment needs to remain turned on for service needs or to maintain performance. Identify equipment that is used infrequently but draws energy even when not in use.
Consider what equipment remains on for convenience, i.e. to eliminate start up time in the mornings. Could daily routines be adjusted slightly to account for this, enabling the equipment to be turned off overnight? Could a timer plug be used for e.g. water baths and heating blocks? Timers ensure that equipment is ready for use when needed but does not remain on for long periods of time unnecessarily.

Consider implementing a 'traffic light sticker system' on electrical equipment. Agree which equipment can be turned off and when. For example, Green – switch off equipment when not in use; Orange – turn off overnight; Red – must remain on.

The Green Champions group are keen to hear from ACB Members about examples of good practice and suggestions for meaningful change. Please contact us via the **ACB Green Champions – good practice submission form** with your suggestions.

References

1. **Why is Net Zero so important? | National Grid Group**
2. **What is Net Zero and how can we get there? – Energy Saving Trust**

To: Presidents and National Representatives of EFLM National Societies
From: Tomris Ozben, EFLM President and TF-GSL Chair

Your promo kit to spread the message to start the green revolution in your National Labs

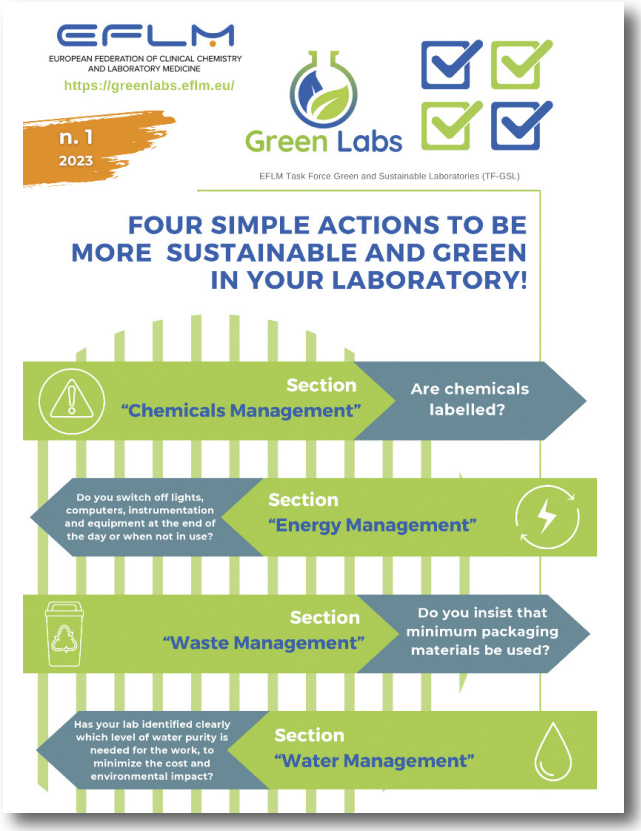
In my role as Chair of the EFLM Task Force "Green and Sustainable Laboratories", I am delighted to inform you that we have created a useful kit that you can use to spread the message to start the green revolution among the laboratories of your country.

The kit consists of the following material:

- The PPT presentation that I used when I met via Zoom the National Presidents, the TF-GSL Representatives and Experts in July in a series of individual meetings
- A page of ads for the EFLM green labs certification that you can publish in your National Society's Journal
- A page of "four simple actions" that can be posted in the laboratories to familiarise with the checklist developed by the TF-GSL to be more green and sustainable in the labs
- A poster of the EFLM TF-GSL (format 70 x 100)
- Some images to promote the EFLM TF-GSL activities via social media platforms: X (formerly Twitter), LinkedIn, Facebook and Instagram)

If you think that something is missing, do not hesitate to let us know. We will be happy to consider the request.

The link to download the promo kit is available on the home page of a mini-website dedicated to the EFLM TF-GSL: https://greenlabs.eflm.eu/



FCS NHS Pensions Representative report

Geoff Lester, FCS Representative to NHS Scheme Advisory Board

Firstly the routine numbers:

- **For NHS Pensioners:** From the first Monday after 5 April (this year 10 April) your gross pensions in payment were increased by 10.1% (CPI in Sept 2022).
- **For active members** all of your 2015 CARE pension pot was increased by 11.6% (CPI + 1.5%).

That increase in your pension pot represents a pretty good deal, especially at a time of high inflation but low savings interest rates and sub-inflationary pay increases.

The past year has again seen a number of significant changes many of which are modernisations to the scheme given that, on the enactment of the first phase of the "McCloud remedy", all accruing pensions are now in the 2015 CARE scheme:

- The contribution structure has removed the highest two tiers and now the most populace contributions tier is the scheme target average (set by HM Treasury) of 9.8%.
- The tier boundaries are updated each year by the general increase to Agenda for Change pay bands. This reduces the number of members (especially in the past at band 8A) who will suffer the "cliff edge" effect of a small AfC pay increase resulting in a large increase in contributions. It is technically challenging to align the tier boundary increase date with pay increase effective date, as the former is set in regulations which must be formally amended by parliamentary process, but all parties are determined to overcome the challenges. This is on-going work at the NHS Scheme Advisory Board
- Your contributions tier is now determined by your actual pensionable pay rather than Whole Time Equivalent pay. This is much fairer to part time workers contributing to a CARE scheme design and gives members some flexibility to control their pension and contributions by adjusting worked hours.

The pension scheme remains seen as an important element of reward to NHS staff. The more rigid regulations of the 1995 Final Salary Scheme have however been perceived as barriers to retention of older and more senior staff as the NHS wrestles with its staffing pressures (or crisis, if you like). A number of flexibilities were introduced during the pandemic response and these have been extended or even made permanent. One of the most important changes is that, going forward, members can now retire with 1995 scheme benefits and still accrue more NHS pension benefits. There are also more ways of partially retiring or being re-employed after retirement.

Central government has also been addressing the detrimental effects of pensions tax, Annual and Lifetime Allowances on retention of higher paid health care staff.

All of these improvements mean that those of you approaching pension age (in your particular schemes) should take some time to:

- Check that your employment and pensions data is correct. Download and

check your TRS. Challenge and correct any inaccuracies in your data with NHSBSA.

- Research the possibilities – in the first place see the NHSBSA website for information on "re-employment after retirement" and "pension retirement flexibilities".
- Consider how you might want to wind down or retire – think about your retirement planning. From 1 October 2023 new provisions for "partial retirement" (in the 1995 scheme) come into force. This may also be worth looking into.
- Consider taking independent advice (you will probably have to pay for this).
- Talk to your managers and trust pensions team.

The NHS Scheme Advisory Board is currently working with DHSC about the practicalities of phase 2 of the McCloud remedy – how, for those in scope, the application of choice at retirement for the 2015-2022 remedy period or how this will be applied retrospectively for those already retired and the many complex possible scenarios that may arise. It is anticipated that business as usual for this choice will not be in place until 2025 but it is assured that the right benefits will be paid in due course.

One of the key facilitating elements is again accurate data. One tool that is currently being rolled out to scheme members will be your "My NHS pension" account. So far some 300,000 members have active accounts and 300,000 more are due soon. You will be contacted when your account is ready. This should make checking your pension records simpler. When you get your account, I strongly recommend accessing your record, checking the employment dates etc and raising either directly with NHSBSA or via your Trust Pensions Officer if you think there may be errors. ■

Would you like to be an FCS Union Representative?

Dr Alan Courtney, FCS Local Representative and EDI Champion

Signing up to become a member of any Trade Union is much like taking out an insurance policy for employment in some respects. You hope you will never need representation, but it is there just in case. It is worth remembering that policy is not always implemented or used correctly and seeking the advice of your Union Representative may provide reassurance or quickly help resolve any issue before it becomes a problem. Collectively, we are stronger.

There are many different reasons that you might like to become a Union Representative. It can provide you with a great experience of making a real difference to members' working lives as well as being great for your career development. It will provide you with a real life working insight into management and policy, particularly problems that can and do occur, and solutions that can be implemented. Experiencing this in the real world provides you with something that cannot be learnt any other way. If you are considering why you might like to get involved in being a Union Representative, I would like to briefly tell you my own story.

Near the beginning of my career I was lucky enough to be a member of the FCS, and with the threat of redundancy from a staffing restructure/consultation, the FCS helped to overturn the decision which was made in an unfair, inconsistent and unlawful way. I found the entire process naturally quite stressful, but having representation was very reassuring. Having come out the other side, I decided that I would use the experience positively. This led me to become more interested in the role that Union Representatives play. When an opportunity came up to take on the role as an accredited FCS Representative I put myself forward. As a Union Representative we do far more than just represent individual needs, be that at formal or informal meetings or hearings. As Union Representatives we get to play a direct role in trying to work in collaboration with the organisation, shaping policy and decision-making to improve the working environment. It has provided me with a real life experience of work-related policy, people management and given me the confidence to speak up for others and believe in myself.

Since 2018, outside of work I have spent time campaigning of behalf of both my children's disabilities. My previous experience reviewing Trust and local policy

and representing colleagues definitely came in handy! This has included representing myself successfully at two Tribunals against my local authority, petitioning at Council meetings, winning an award for setting up a local free and independent advisory group for parents with children that have special educational needs and disabilities, attending the House of Commons on behalf of a campaigning charity and visiting the Department for Education, as well as featuring on national and regional news outlets (you may have even seen me on the BBC or ITV earlier this year).
Whilst stressful, this has been overall a rewarding and enlightening experience for me.

This has led me to want to share the positives I have learnt and experienced and to bring this into the workplace.
I am now the Trust EDI Lead Staff Union Representative and have recently taken on the role of EDI Champion for the ACB. To this end I'm happy to advise all staff and managers alike on EDI or policy related issues, the aim being to work together for the benefit of everyone.

If you would be interested in becoming a Union Representative and would like to discuss what it might entail, please feel free to reach out and contact me (**alan.courtney@nhs.net**). No experience is necessary, just a willingness to learn and speak up for colleagues! ■

Foundation Award Lecture

Ben Nicholson, Senior Clinical Scientist, Sheffield Childrens NHS Foundation Trust

Day two of UKMedLab23 brought with it many interesting presentations, one of which was the Foundation Award Lecture by Professor Paul Collinson, Honorary Consultant Cardiologist at St George's University Hospital London, and Professor of Cardiovascular Biomarkers. This session was focused on cardiac biomarkers, titled 'Metamorphosis: from retrospective confirmation to management tool, the evolution of cardiovascular biomarkers'.

Professor Collinson took us on a journey through time, reciting a brief history of the cardiac biomarker timeline, where at the beginning, coronary thrombosis was considered a medical curiosity more so than a cause of death and cholesterol and smoking were okay.

The first biomarker to be discovered was an electrocardiogram (ECG) developed by William Einthoven, which was later developed into an essential diagnostic and management tool for Acute Myocardial Infarction (AMI) which can diagnose ST elevation myocardial infarctions (STEMI), but does not help in non-STEMI.

After this, the 1980s was the decade of change for Cardiology. This age brought a paradigm shift to the understanding of the pathophysiology of acute coronary syndromes. Here it was understood that acute plaque rupture is the underlying cause of acute coronary syndrome (ACS) and that white (platelet) thrombosis progresses to red (fibrin thrombus) which adds rationale to the use for anti-platelet

Professor Paul Collinson receiving his Award from Dr Kath Hayden

agents and anti-thrombotic therapy. This understanding of the ACS pathophysiology led to novel interventions, including the infusion of thrombolytic drugs to dissolve the blood clot that causes MI and cardiac catheterisation with clot removal and coronary stenting.

After this, the age of the biomarker began, with studies looking into the early detection of AMI in patients presenting with chest pain and non-diagnostic ECGs. This led to the formation of enzyme-linked Immunoassay for cardiac troponin T for the detection of acute myocardial infarction in patients. However, due to Cardiology being dominated by the key opinion leaders and the ECG, there was seen to be no role for cardiac markers apart from retrospective confirmation. Years of research into troponin as an outcome predictor showed it to be a biochemical surrogate test for plaque rupture and downstream platelet micro-embolisation. Troponin detected the blocking of small blood vessels which caused cardiac damage and often occurred prior to MI. Troponin was shown to be cardio specific, sensitive (elevation seen in patients "without AMI": occurring in 33% of patients, indicating myocardial damage, predicting major adverse cardiac events). Multiple publications showed that troponin could be used as the single definitive test for acute myocardial infarction for diagnosis and risk stratification.

Today, troponin is routinely measured using 'high sensitivity' methods. This means that very small amounts can be detected and repeat measurements are reliably consistent. Troponin is now extensively requested but a large number of these tests are inappropriate. A positive troponin is regarded as diagnostic of AMI regardless of the clinical situation. There are a large number of causes of troponin elevation outside ACS – something that was recognised early on. Troponin is now being applied to machine learning for the diagnosis of myocardial infarction. ■

POCT

Ailsa Ralph, Trainee Clinical Scientist, University Hospital Wishaw, NHS Lanarkshire

Day two of UKMedLab23 began with the parallel session 'Point-of-care testing: wriggly worms out of the can' provided by the expert point-of-care (POC) team at Berkshire and Surrey Pathology Services (BSPS). Mrs Katy Heaney, Consultant Clinical Scientist, chaired the informative session, which delved into the current challenges faced within POC testing (POCT). The BSPS team shared their experiences of how they have navigated and, in some instances, successfully overcome these for service and patient benefit.

Neonatal jaundice assessment: banana skins and snake pits

Speakers **Dr Fiona Riddoch** and **Miss Bethan Philips** were first to present their experiences of POCT for neonatal jaundice. Jaundice is a common and typically benign occurrence within newborn babies; however, persistence can indicate disease. Early and reliable detection is warranted, yet the methods available can be subjective, for example visual inspection of the skin, or require invasive blood sampling in secondary care, such as total bilirubin measurement by the laboratory and POC blood gas analysers. Other POC methods address some of these limitations, such as portable transcutaneous meters that can detect jaundice via reflective spectrophotometry. This delivers rapid results and can be used at the patient's bedside as well as within the community.

Dr Riddoch highlighted the 'snake pit' that such a wide range of available methods has caused. The presentation revealed some startling discrepancies between them, such as the generation of incomparable results and confusion surrounding their interpretation using pre-established, non-specific threshold values recommended by the National Institute for Health and Care Excellence

Dr Fiona Riddoch and Miss Bethan Philips

(NICE). This was thought-provoking, as threshold values guide clinical decision-making on whether patients are at-risk and require further care. For patients, this could mean undergoing unnecessary or delayed confirmatory testing and treatment. These concerns were raised by Dr Riddoch and the BSPS POC network to the Quality Assurance in Pathology Committee, which has been acknowledged within the NICE CG98 guidance and service users are now advised to clarify with the local laboratory if uncertain.

Miss Philips presented her exploration of these challenges during the verification of the Draeger Jaundice POC meter JM-105, a handheld transcutaneous meter. The purpose of this POC method is to enable the non-invasive assessment of potentially jaundiced newborn babies within the community and use the results to identify those requiring confirmatory testing or intervention, which can include phototherapy and exchange transfusion. Due to the lack of an external quality assurance scheme and associated materials, a patient comparison study was performed, which led to the implementation of a revised protocol with new assessment criteria. The next steps involve performing a comparison with other platforms and the adjustment of method-specific threshold values over time depending on the method performance, working with the device manufacturer and developing tools to aid service users with interpretation guiding patient care.

Hs-cTnI implementation: the POCT obstacle course

The second talk was presented by **Lisa Vipond**, Pathology Service Manager, and **Dr Anthea Patterson**, Consultant Clinical Scientist, Royal Cornwall Hospital (RCHT). The speakers set the scene by describing the significant burden experienced by the Emergency

Lisa Vipond

Department (ED) within Cornwall's acute hospital over recent years, an occurrence that led to the media reporting the emergency services as having the 'worst' response times in the UK. The RCHT team pinpointed chest pain as the most common reason for ED attendance. POCT was identified as the solution to alleviate this burden.

Dr Anthea Patterson

The RCHT is one of the first sites to implement a POC device measuring high sensitivity cardiac Troponin-I (hs-cTnI). The purpose was to assess 'walk-in well' patients that are at a low risk of experiencing a significant cardiac event, such as myocardial infarction (MI), in the community, as opposed to within the ED. After surveying the available POC devices, the Atellica VTLi was selected as it fulfilled the NICE analytical criteria guiding MI diagnosis, provided acceptable precision and performed well when compared with the laboratory method using paired patient samples. Over 300 patients were reviewed and none experienced a cardiac event during this time. The results were approved by a multidisciplinary team of stakeholders, ranging from ED doctors to laboratory scientists. Following this, hs-cTnI POCT was incorporated into the RCHT pathway for low-risk chest pain assessment in the community, with positive results triggering an ED appointment for cardiac investigations and negative results providing reassurance for the patient to be sent home and/or monitored in the community.

Since going live in October 2022, the speakers have described the implementation process as an 'obstacle course' with a steep learning curve. The challenges faced included training consistency due to varying shift patterns, initial distrust of the Atellica VTLi device by junior doctors and location of the device which was found to significantly impact the hs-cTnI results, for example the speakers reported learning not to position it near centrifuges. Despite these hardships, preliminary data reveal a staggering 50% decrease in the number of people attending ED for chest pain, with no adverse events described. All-in-all, this POC method has significantly eased the burden on the emergency services so far and contributed to the safe triaging and provision of care for low-risk patients with chest pain.

POCT IT: Nailing down the great unknown

Did you know that the Apple watch has provided the largest pool of data on atrial fibrillation to date? Neither did I! **Dr Jonathan Kay**, a renowned chemical pathologist from Oxfordshire, began his talk with this surprising fact that illustrated the many ways technology can aid in the collection and management of health data.

Dr Kay's talk highlighted the benefits of POCT, which include rapid result generation, improved care outcomes, patient empowerment and workload reduction for healthcare professionals. Further adding to these benefits are the advancements in technology that improve POC device usability, expand the testing repertoire, and even offer mechanisms for patients to self-test outside of a healthcare setting. As a result, many projects are ongoing to enable people to test within the comfort of their own homes, such as Virtual Ward and Hospital at Home, most of which rely on POCT. This demonstrated

Dr Jonathan Kay

there is a place and a growing need for POCT within the community. Nonetheless, Dr Kay pointed out that there are many POC tests already available to the general public, such as those that can be purchased at a high-street pharmacy. He described a time he and a colleague purchased a range of self-testing kits and compared their performance against the laboratory methods at the time. This came with a reminder to take the results of such tests with a pinch of salt due to the lack of regulatory adherence or validation.

The perspectives of the audience on POCT were also explored. POCT was frequently described as 'still growing' and 'infantile' by the audience, with the most commonly stated obstacles to its expansion as staff training and technological advancements. These questions also revealed that the audience were generally looking for POCT results to be shared and reported within the established laboratory information management system, rather than a separate system, but they should remain clearly distinguishable from the results generated by laboratory methods. Lastly, the lack of regulation around purchasable self-testing kits was collectively identified as a complex issue and a source of anxiety. A question posed to the audience was whether patients should be able to send their results from self-test kits to their general practitioner (GP). The results showed that 36% of the audience agreed that patients should inform their GPs, 5% disagreed and 59% felt the issue was more complicated than this. The session concluded with the audience naming an area of information management for POCT that could feasibly be improved, which included funding, time, resources and good connectivity.

Summary

The take-home messages from this informative and engaging session were that POCT has untapped potential, particularly within the community, with the ability to generate rapid results, support the involvement of patients within their care and improve outcome. However, challenges remain, including the incompatibility of POCT results with those obtained from the laboratory, method variability and the limited resources to support feasible improvements. ■

Performance evaluation of the Viasure PCR assay for the diagnosis of mpox: a multicentre study

Emma Tuddenham, Clinical Scientist, South West London Pathology

Dr Penny Cliff (Clinical Scientist in Infection Sciences at Synnovis, St Thomas' Hospital) gave a fascinating presentation on mpox (or monkeypox). Mpox posed a huge diagnostic challenge last year when cases of human-to-human transmission were detected, particularly amongst men who have sex with men (MSM). The situation was rapidly evolving and London was at the centre of the UK outbreak with a large MSM population, particularly in the Southwark and Lambeth boroughs served by St Thomas'. Mpox is an airborne high consequence infectious disease (HCID) with no clear effective treatment, and patients initially required isolation in a specialist unit. There are only five of these in England, with one being at St Thomas'.

Dr Penny Cliff

Mpox is in the same viral genus as smallpox and causes fever followed by the eruption of skin lesions. However, in the 2022 outbreak, fever was often absent and the usual discrete erupting skin lesions were often replaced by a more erythematous rash making it more difficult to pick up cases. If lesions were present, they were usually on genitalia or peri-anal, and caused oedema which required hospitalisation for pain relief, although infection was not usually fatal.

In early 2022 Porton Down was the only lab in the UK offering mpox testing – a real time pan-orthopox PCR screen followed by mpox specific PCR. No commercial assay was available. Sending mpox testing to Porton Down meant increased turnaround time and required specialist category A transport, with issues around tracking of high risk infectious samples.

In collaboration with South West London Pathology and North West London Pathology, the Synnovis lab at St Thomas' verified the Certest Viasure kit for mpox diagnosis. Two hundred and seventeen patients were enrolled in total, comprising 116 positive cases and 101 negatives. The kit is a real-time PCR assay and was used in the study to identify DNA from the mpox virus on swabs from skin lesions or the throat. Results were compared with those from Porton Down and were more likely to be discordant if the samples were

unmatched (e.g. skin lesion and throat). 149 of the patients in the study had matched samples (86 positive and 63 negative), and in these the Certest Viasure kit showed 100% sensitivity, with a specificity of 94-100%.

Although the prevalence of mpox has decreased in the UK, there has been a recent rise in the USA and Western Pacific, so the need for an mpox assay is likely to remain.

Measurement of free light chain – technical challenges and clinical utility

Joanne Morris (Consultant Clinical Scientist, South West London Pathology) gave an overview of assays for detection of antibody free light chains. In health, when antibodies are produced a small excess of light chains are released into the circulation, filtered by the kidney and reabsorbed, with a fraction being excreted in urine. An increase in polyclonal light chains can be seen in infection or inflammation. A monoclonal increase in free light chain production is associated with malignancy such as multiple myeloma.

The advantages of serum free light chain analysis compared with urine electrophoresis (for Bence Jones Protein; BJP) were discussed. Urine electrophoresis often produces a variable and complex pattern and immunofixation may be needed to highlight monoclonal bands on a background of glomerular or tubular proteinuria. Urine may need to be concentrated first, and the quantitation of BJP is subjective, being reported as an approximate percentage of urine total protein. In addition, BJP only appears in the urine once the capacity of the kidneys to reabsorb it has been exceeded. However, urine electrophoresis with immunofixation will detect both intact antibody leak and light chains and it provides a good visual record and confirmation of monoclonality.

Joanne Morris

Several automated methods for measurement of free light chains in serum (SFLC) are now available. These have the advantage of providing a true quantitative result and are useful for diagnosis of monoclonal gammopathy. They are also prognostic and change rapidly upon treatment. SFLC may be the only abnormal marker in light-chain only myeloma or amyloid. Skilled interpretation of SFLC results is required because abnormalities do not confirm monoclonality – a polyclonal rise of both kappa and lambda, and/or an abnormality in the ratio may be mis-interpreted as MGUS by non-specialists.

Historically there have been issues with SFLC lot-to-lot variability, variation between methods, antigen excess problems and carryover, although the situation is improving. SFLC results should always be interpreted by an experienced operator alongside immunoglobulin measurement, serum electrophoresis and urine, if available. A slightly raised kappa light chain is common in infection, but a slightly raised lambda result is more

concerning and should prompt immunofixation of the serum.

Joanne highlighted the 2022 Myeloma UK survey, which found half of new myeloma cases had delayed diagnosis due to non-specific early symptoms (including back pain and lethargy). A third of new cases were picked up through an A&E encounter. An important clue in an anaemic patient is the MCV, which is normal in myeloma in contrast to iron or VB12 deficiency. Myeloma UK have produced a primary care diagnostic tool in collaboration with clinicians and laboratory professionals, with advice on which tests to request and how to act on results. The tool advocates serum electrophoresis, SFLCs, immunoglobulins, FBC, calcium and creatinine measurement if myeloma is suspected. Urine electrophoresis is required if SFLCs are unavailable.

Joanne also signposted the monoclonal gammopathy lab tool Myeloma UK have recently produced covering all laboratory aspects of diagnosis, from pre- to post-analytical, which has recently been audited by the ACB National Audit Group.

Measuring FGF23 in patients treated with Burosumab

Isabelle Piec (Senior Research Associate, Norwich Medical School) discussed measurement of fibroblast growth factor 23 (FGF23) in patients with X-linked hypophosphatemia (XLH) treated with Burosumab. FGF23 is produced by osteoblasts and osteocytes, acting as a phosphatonin to decrease circulating phosphate levels by a variety of mechanisms. In health, FGF23 is upregulated by high phosphate or calcium levels. In XLH, mutations in the PHEX gene lead to overproduction of FGF23, resulting in hypophosphataemia and defective bone mineralisation with short stature, deformities of lower limbs (rickets),

Isabelle Piec

tooth abscesses and osteoarthritis.

Burosumab is a monoclonal antibody therapy against FGF23, which is licensed for use as a single dose in paediatrics only. Serum phosphate levels are generally restored to within normal limits within 50 days of treatment. However, pathological tissue calcification is a known side effect so FGF23 is measured to avoid overtreatment.

Measurement of FGF23 in patients on Burosumab is subject to assay interference, as the monoclonal antibody therapy causes falsely elevated results in several FGF23 assays (including Immutopics c-terminal and intact FGF23 and MedFrontiers) and falsely low levels with the DiaSorin kit.

Dr Piec discussed ways to overcome this interference, including immunoprecipitation of Burosumab with magnetic anti-IgG beads. After this step, measurements of intact FGF23 in XLH patients are often still genuinely high, which may explain the persistence of some symptoms in treated XLH. However, c-terminal fragment of FGF23 is not detectable after Burosumab treatment.

Interactive Clinical Cases

Indra Tiwari, STP Year 2 Clinical Biochemistry, Mid Cheshire Hospitals NHS Foundation Trust

As a Trainee, I had a particular anticipation for attending the interactive clinical case session held on 14 June at UKMedLab23. As in previous years, this year's presentations were highly impressive and engaging, contributing to the continued popularity of the session.

Interactive Clinical Case 1: It's a H-A-R-D-U-P life

Dr Angela Boal, from the NHS Greater Glasgow and Clyde, kicked off the session by presenting a case of a 66-year-old male with reduced responsiveness over 24 hours found to have a severe metabolic acidosis with raised anion gap. The patient was negative for ethanol, paracetamol, salicylate, ethylene glycol and methanol and was not prescribed metformin, iron, isoniazid or sodium glucose-co-transporter 2 inhibitor. Urea and lactate were mildly elevated. His body mass index (BMI) was noted to be 23 kg/m^2; however, it was last documented one year previously at 28 kg/m^2 with no clear timeframe of weight loss. However, on day three his anion gap resolved with intravenous fluids, but he developed severe electrolyte disturbances indicative of refeeding syndrome. Dr Boal explained that starvation ketoacidosis can lead to severe acidosis when exacerbated by stress.

Interactive Clinical Case 2: Bad to the bone?

The second case was presented by **Dr Rhys Goodhead** from the University Hospitals of North Midlands, on a grossly elevated serum alkaline phosphatase (ALP) at 6400 U/L with other liver function tests within reference limits in a 36-year-old patient with cystic fibrosis. This result was confirmed by a repeat ALP activity at 6870 U/L. He went on to discuss further investigations that took place for the patient such as the ALP isoenzyme test,

Dr Angela Boal

Dr Rhys Goodhead

scintigraphy, x-rays and biopsy. Subsequent isoenzyme analysis showed transient elevation of serum ALP. This finding was consistent with benign transient hyperphosphatasaemia. Scintigraphy showed homogenised generalised uptake with no specific location of activity found. The patient had regular ALP determinations which showed ALP activity gradually return to the baseline. Dr Goodhead concluded that it is important to recognise that benign transient hyperphosphatasaemia of infancy may also occur in adults, to avoid unnecessary testing that can be expensive and cause patient anxiety.

Interactive Clinical Case 3: The abnormal abnormality

Dr Azza Osman, from the University Hospitals of Wales, Cardiff, presented a rare condition case. A 68-year-old man with a history of chronic lymphocytic leukaemia (CLL) had normal admission serum bloods but the patient's repeat plasma potassium was 10 mmol/L.
The patient continued to be asymptomatic despite the persistently elevated plasma potassium. Potassium was rechecked on both plasma and serum, which were 7.9 mmol/L and 3.3mmol/L, respectively. The possibility of pseudohyperkalaemia was considered. She further explained that the phenomenon is yet to be clearly characterised but in one study, the degree of increase in potassium was directly related to the amount of heparin contained within the tube. Dr Osman highlighted the importance of distinguishing cases of true hyperkalaemia from pseudohyperkalaemia and reverse pseudohyperkalaemia.

Interactive Clinical Case 4: A highly complex patient – 12 years to spot the diagnosis

The fourth case was presented by **Dr Julie Tarling** from Bedford Hospital NHS Foundation Trust. The patient was an 18-year-old female with diabetes mellitus and frequent presentations to A&E with diabetic ketoacidosis (DKA). She was also hypotensive with hyponatremia and diagnosed with primary adrenal insufficiency. She had an additional six years of frequent visits with DKA with abdominal pain but normal amylase. However, on one occasion the patient

Dr Azza Osman

Dr Julie Tarling

presented with the symptom of dark urine, leading to the suspicion and subsequent diagnosis of acute porphyria, specifically hereditary coproporphyrin.

Dr Tarling's take home message was to consider testing of urine porphobilinogen (PBG) in a patient with acute abdominal pain.

Interactive Clinical Case 5: Variety is the spice of life

An interesting case was presented by **Dr Jessica Johnson** from Sheffield Teaching Hospitals. A 48-year-old with a medical history of COPD, hepatitis C and a heavy smoker was admitted with cellulitis.
The carboxyhaemoglobin (COHb) level of the individual was measured as 29.8% on the second day and subsequently increased to 30.1% on the fourth day. The patient reported using a synthetic cannabinoid known as 'Spice'. According to Dr Johnson, there have been instances of paint stripper contamination in Spice products in Sheffield. Methylene chloride, found in paint stripper, undergoes an oxidation reaction that results in the production of formic acid and carbon monoxide (CO). She explained that CO levels exceeding >12-15% are unlikely to be due to smoking alone.

Interactive Clinical Case 6: The why of water

Following on, **Dr Lorenz Becker,** from the University Hospitals of North Midlands, gave his talk on a rare cause of chronic, serious hyponatremia. The patient was a 61-year-old male dyspnoeic with wheeze, diarrhoea and vomiting. Upon initial examination, severe hyponatremia of 101 mmol/L was observed. The plasma osmolality was 211 mOsm/kg, urine osmolality was 467 mOsm/kg and urine sodium concentration was 11 mmol/L. Syndrome of inappropriate ADH secretion and cerebral salt wasting syndrome were excluded. Subsequently, Dr Becker proceeded to present the patient's medical records, which indicated a history of ethanol dependence.
The patient had admitted to drinking two to three litres of cider four days per week. The patient's decreased urine osmolality, coupled with inadequate oral intake, diarrhoea and vomiting and a history of alcoholism, indicated a diagnosis of beer potomania.

Dr Jessica Johnson

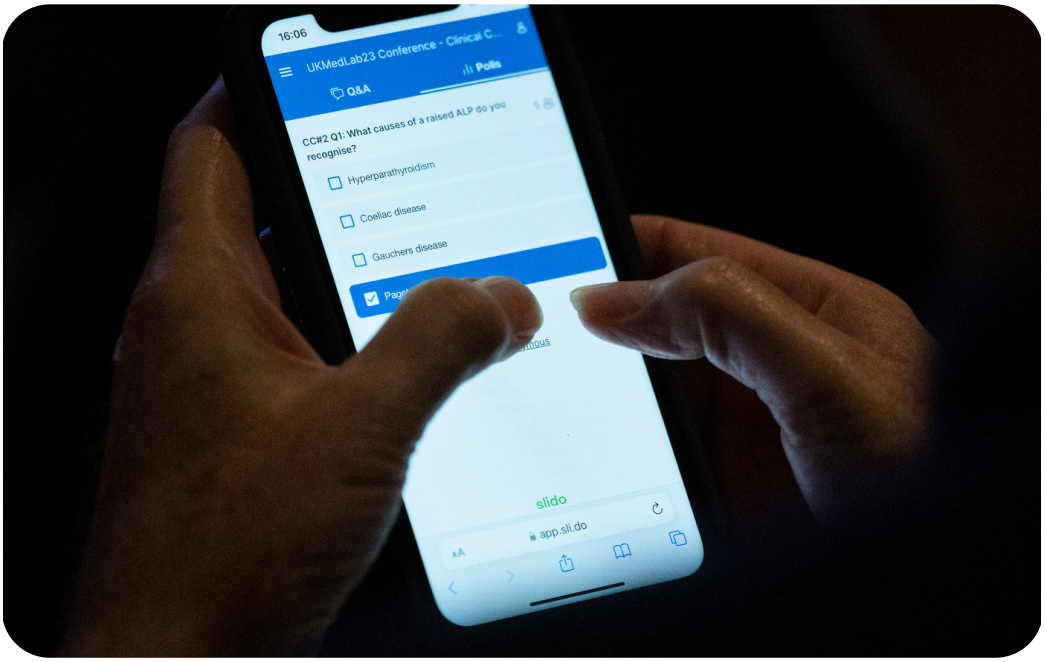
Dr Lorenz Becker

Interactive Clinical Case 7: Be aware

The final case of the session was from **Corey Pritchard** from the University Hospitals Bristol and Weston. The patient was an 11-year-old female with a two-month history of vomiting, reduced appetite and altered bowel habits with elevated body mass index (BMI). MRI was consistent with severe ileal Crohn's disease, and she was initiated on parental nutrition (PN) plus electrolytes. However, her condition deteriorated with reduced consciousness. Extensive evaluation revealed PN initiated on admission did not contain water soluble vitamins and the presentation attributed to Wernicke's encephalopathy. Elevated serum lactate and neurological symptoms quickly resolved within 24 hours of administration of B vitamin replacement. This patient was at high risk for nutritional deficiency due to recent weight loss and the risk was underestimated due to an elevated BMI. To conclude, it was stated that risk of thiamine deficiency should be considered with any history of recurrent vomiting even if the patient does not appear malnourished.

Dr Corey Pritchard

Congratulations to Dr Angela Boal for winning this year's Clinical Cases Oral Presentation Prize and thank you to all the presenters for giving us valuable learning points.



Myths, legends and WLIMS

Annabel Rodham, Biochemistry, Cardiff and Vale UHB

On the second day of the UKMedLab23 Conference, Wales was able to showcase some of the interesting work and specialist services provided by the region. First to present in the line-up of three topics was **Dr Danja Schulenburg-Brand**, Consultant Chemical Pathologist and Clinical Lead for the Cardiff Porphyria Service (CPS). Danja gave the audience an overview of the haem synthesis pathway, explained the classification of the porphyrias and the diagnostic pathway for each. There are eight steps in the haem synthesis pathway, altered enzyme activity at any point can give rise to one of the porphyrias. There are two acute porphyrias (AIP and ADP), four cutaneous porphyrias (PCT, EPP, XLEPP and CEP) and two acute porphyrias which also present with skin symptoms (VP and HCP). The acute porphyrias have low penetrance, only a small percentage of those affected will have symptoms. Danja explained how one of her acute intermittent porphyria (AIP) patients described a recent attack as more painful than childbirth. Acute porphyria should always be considered in post-pubertal, pre-menopausal females with abdominal pain, especially if they present with hyponatraemia. Severe acute attacks are traditionally treated with haem arginate, however a new NICE approved drug, Givosiran, has revolutionised the treatment of patients suffering from severe recurrent attacks. Givosiran is a small-interfering ribonucleic acid which suppresses δ-aminolevulinic acid synthase 1 production by the liver, reducing build-up of toxic aminolevulinic acid. The National Acute Porphyria Service (NAPS) is a 24/7 service provided by the CPS and King's College, London. NAPS offers clinical advice for healthcare professionals supporting patients with new acute attacks and recurrent attacks and can be contacted through the University Hospital of Wales switchboard. The cutaneous porphyrias result in either fragile skin, bullae and milia or an acute painful photoreaction. Diagnosis is often delayed as there are no visible symptoms when the person removes themselves quickly from sunlight, and affected individuals naturally avoid sunlight. No treatments are available for the cutaneous porphyrias; however, Dundee sunscreen includes visible light filters as well as ultraviolet and is prescribed for patients with severe photosensitivity. Avoiding the sun or bright lighting, covering up with dense clothing, phototherapy and venesection to reduce iron can help affected patients. Complications include poor bone health and hepatocellular damage along with the associated psychological impact. The CPS has been built on many years of expertise and research in the laboratory. Given the labour-intensive nature of the assays, Danja emphasised the importance of including relevant clinical details on

Dr Danja Schulenburg-Brand

request forms. The laboratory will only perform the assays required for a diagnosis based on the clinical symptoms provided.

Second was a joint presentation by **Rachel Still** and **Catherine Bailey**, both Consultant Clinical Scientists in Swansea Bay and Aneurin Bevan University Health Boards, respectively. In 2009 NHS Wales had a reconfiguration leading to the approval by Welsh Government of a single laboratory information management system (LIMS) across Wales (WLIMS). This was an opportunity to combat historical issues involving referral via paper reports sent in the post and limited communication between health boards. The aims of the WLIMS were to reduce variation and duplication between health boards, to deliver a standard approach to laboratory testing across Wales and ultimately to improve governance and patient care. From 2010 onwards, the Clinical Biochemistry Standardisation Group agreed on a national template for WLIMS configuration, test set profiles, standard interpretive comments and reference intervals. The audience was taken through the trials and tribulations of the implementation process and the success of the roll out on completion in 2015. Implementation challenges revolved around a lack of full documentation, lack of training and the misunderstanding that processes can be changed for individual health boards. Despite the challenges, access to test results across Wales is a huge advance for patient care. WLIMS2 is on the horizon, which brings further opportunities to improve patient care and green laboratory medicine. There are still discrepancies between configurations and thus workflow reviews are currently being undertaken, designated between health boards. This has already led to retirement of >140 tests. Reporting of tumour markers is a particularly difficult problem, there is no consensus for prostate-specific antigen (PSA) triggers or comments, this is a demanding area for standardisation. Health boards use different creatinine assays and cut-offs for suppression of results from icteric samples, this has also been problematic for all parties to agree on. Certain pathways such as faecal calprotectin and the All-Wales perioperative anaemia pathway were much easier to achieve with the input of clinical colleagues, this emphasises the importance of involving the correct colleagues and ensuring they are engaged

Rachel Still

Catherine Bailey

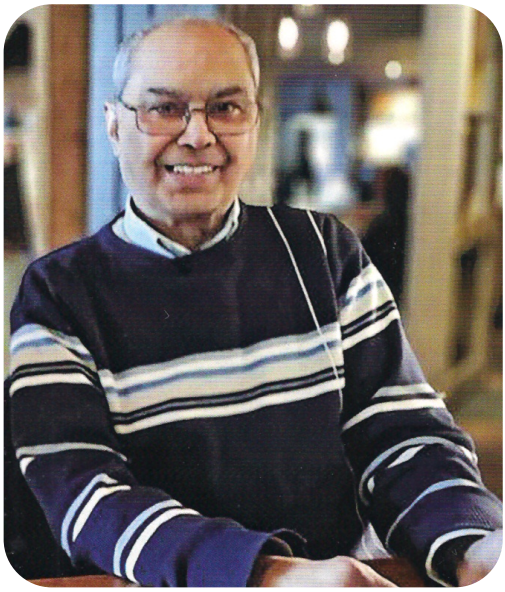
with the standardisation process. The process has been a huge amount of work, but improvements have definitely been made to patient care across Wales.

To complete the session **Joanne Rogers**, Consultant Clinical Scientist at the Cardiff Toxicology Laboratory gave us an overview of WEDINOS (Welsh Emerging Drugs and Identification of Novel Substances), or 'after dark' in Welsh. WEDINOS is a harm reduction project initialized when an increase in accident and emergency admissions due to unknown substances was observed. The project was officialised by Public Health Wales (PHW) in 2013 and is a collaboration between Cardiff and Vale University Health Board, PHW and Cardiff University School of Pharmacy. Anonymous samples are either sent directly to the lab, collected at substance abuse centres or retrieved from amnesty bins at festivals. WEDINOS will not test any samples with patient information or for evidential advice. The service has grown hugely in the 10 years since its inception with nearly 34,000 samples received from across the UK and >400 substances identified. The most significant trend seen by WEDINOS currently is the substitution of benzodiazepines, based on recent data only 50% of samples with the purchase intent of diazepam actually contained diazepam. In 2018 WEDINOS acquired a Waters Aquity quadrupole time of flight (QTOF), combining liquid chromatography with a quadrupole has improved identification of substances with isobaric interference. Waters provide a library of retention times and fragmentation patterns which can be used to match substances. Novel unmatched substances are confirmed using nuclear magnetic resonance (NMR) at Cardiff University School of Pharmacy, this is a difficult process when the substance is plant material and in samples containing lots of fillers. It would be valuable if WEDINOS could influence which drugs are included in the urine drugs of abuse screen, however it is difficult to acquire reference standards for new emerging substances and to keep up with the rapidly changing trends in drug-use. One of the outcomes of WEDINOS is implementation of a quantitative 3,4-methylenedioxymethamphetamine (MDMA) process to assess the percentage of MDMA in a mixture. The data is given to PHW who issue an alert if a high MDMA percentage substance is on the market. A member of the audience asked whether WEDINOS has a place in identifying illicit hormones purchased online for image enhancement. Currently WEDINOS would not be able to cope with the numbers of requests for this without further funding. The routine workload is consistently increasing and therefore WEDINOS will require more staff and equipment to maintain the service, a balance between instrument specificity and turnaround time will need to be struck. A further question queried whether the novel substances identified by WEDINOS are given to Waters for addition to their library. This is not a process currently in place but could be beneficial to support forensic analysis in other institutes. ■

Joanne Rogers

Prabhu Dass Raniga

1953-2023



Prab was born in Gujarat in India in 1943. He had three brothers. The family emigrated to the Fiji Islands in 1948 where he attended St Thomas Primary School before he moved on to Natabua High School.

Whilst in Fiji some missionaries built a church next to their home and Prab and his younger brother Lal were encouraged by their two older brothers to attend Sunday school so they would learn English and stay out of trouble. Prab became a devoted Christian and his life revolved around school and the church where he spent much of his time helping the missionaries collect and drop off the local children for Sunday school.

Two years after Prab graduated from high school, his elder brothers, who were in the USA, encouraged and helped Prab to go to the UK. It was much easier to go to the UK as Fiji was a British Colony and he already had a relative here.

When Prab flew from Fiji to the UK, he was supposed to stop in California to meet up with his brother Kanti, but the flight was delayed, and they did not connect. Prab flew onto New York with virtually no money. On landing in New York, a stranger paid for his hotel and gave him money to make a phone call. He then continued to the UK and again another stranger gave him the bus fare to get him to his destination. At the tender age of 17 years Prab arrived in London without a penny.

He then went back to school to take A Levels and when Prab arrived at school, the Principal arranged for a scholarship to assist with his expenses.

After his A Levels he embarked on a career in Laboratory Medicine when he started working at Willesden General Hospital as a junior technician. He moved onto Edgware General Hospital where he decided to specialise in Clinical Biochemistry after obtaining his FIMLS. He worked at St Bartholomew's for a short time before moving to Northwick Park Hospital. This was a brand-new hospital, and he was involved in setting up the Clinical Chemistry Department in preparation for the opening. Prab always said that "the patients came and spoilt it!" During this time, he also studied part-time to obtain the MIBiol and in 1973 he then moved on to the Lister, another new hospital, where he took up a Senior Biochemist position. At this time, the Department was under the supervision of the Chemical Pathologist at Luton and Dunstable Hospital. When this arrangement changed Prab became Principal Biochemist and Head of Department. During this time, he helped

the Department become an up-to-date and state-of-the-art laboratory embodying the rapid changes required in bringing in new automation, computers and immunoassay. He was a very active ACB Member and regularly attended the Focus and Regional meetings where he made lifelong friends and contacts. He served on many of the Lister Hospital committees as well as the Regional Specialist Subcommittee (NW Thames) whilst in operation. He served on the Northwest Thames Quality Assurance and Audit Working Party and the Education Working Party for many years and arranged lots of successful meetings at the Lister Hospital.

Prab was well respected and appreciated by his clinical colleagues because of his approachable, helpful and friendly disposition.

Prab retired in 2006 after having worked in the NHS for 44 years. He had always been an ardent traveller, despite having motion sickness as a child, and in the early years of his retirement he visited Australia, New Zealand and South Africa. He went to Ontario on a regular basis to see his brother and they took long road trips into the USA. Prab was a very sociable person, he loved cooking and entertaining for people, and his excellent curries were very much appreciated.

Prab was also very generous, and his charitable efforts helped many less fortunate people and children in the third world. He also supported the building of wells in various countries.

During the later stages of his retirement Prab encountered many difficult problems but he always faced up to them with a stoic resolve helped by his strong Christian faith.

Prab's health started to deteriorate in 2023 and he passed away on 29 May 2023 in the Lister Hospital where he had given over 30 years of dedicated service, finishing his career as a Consultant Clinical Scientist.

He is survived by a daughter and two sons. ■

C.E.A.

ACB News Crossword

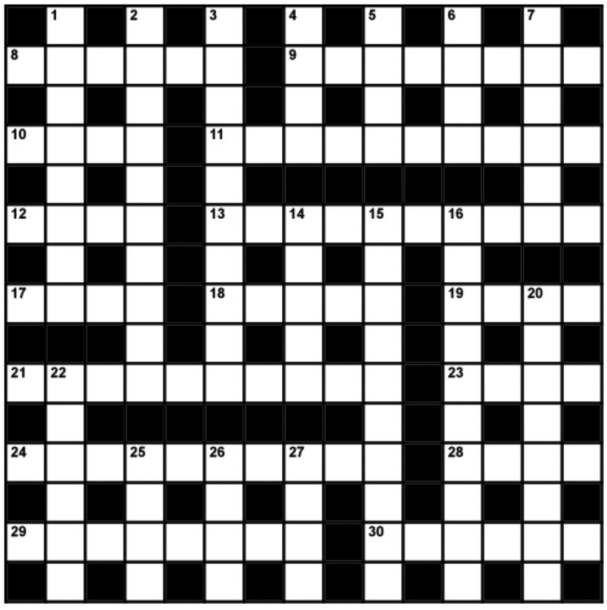
Set by Rugosa

Across

8 Generally dissipated, all lacking get-up-and-go (6)
9 User's software sorted index for supplement (8)
10 Metal press (4)
11 Immunity potentially increases with time (10)
12 In opposition in Santiago (4)
13 A 19 that contributes to 11 (5,5)
17 Web medical thesaurus (4)
18 Musical tonic (5)
19 Rejection of French computer terminal (4)
21 Incorrect initiation of cooking alters fats (5,5)
23 Smooth uniform (4)
24 Uriah consumed a meat pie, developed renal tract problem (10)
28 Pelt shelter (4)
29 Synthesis of first stable enteric hormone (8)
30 Clinic ignored unusually inconclusive blood type (6)

Down

1 Transport access (8)
2 Ostentatiously displays meals for constipation? (10)
3 Power plant destruction – degradative chemical process (10)
4 Grammar school boxing scars (4)
5 Copies some tapestry (4)
6 Christian name within? (4)
7 Nutrient from hopeless Phoenician cook (6)
14 Toast the singer (5)
15 Have incorporated travel arrangement for circulation director (5,5)
16 Lash out with anger and name German pathologist (10)
20 Terrible doctor deaf about upstart trainee (8)
22 Surprised at promotion about two-dimensional puzzle (6)
25 Further traditional customs without point (4)
26 Carry course calculator (4)
27 Closed chain gang (4)



Solution for August's Crossword

A	N	G	I	N	A	■	C	A	T	A	L	Y	S	E
■	E	■	D	■	S	■	L	■	R	■	I	■	E	■
P	U	R	I	T	Y	■	E	L	A	S	T	A	S	E
■	T	■	O	■	M	■	A	■	I	■	H	■	S	■
B	R	A	T	■	M	E	N	I	N	G	I	T	I	S
■	A	■	I	■	E	■	E	■	■	■	U	■	O	■
E	L	I	C	I	T	■	D	O	P	A	M	I	N	E
■	■	■	■	■	R	■	■	■	R	■	■	■	■	■
S	E	R	O	T	Y	P	E	■	O	R	D	E	R	S
■	X	■	V	■	■	■	X	■	P	■	I	■	E	■
A	P	P	A	R	E	N	T	L	Y	■	S	I	T	E
■	L	■	R	■	L	■	R	■	L	■	T	■	I	■
P	O	S	I	T	I	V	E	■	E	Q	U	I	N	E
■	R	■	E	■	S	■	M	■	N	■	R	■	O	■
P	E	R	S	U	A	D	E	■	E	M	B	O	L	I

ACB News

The Editor is responsible for the final content; advertisers are responsible for the content of adverts. Views expressed are not necessarily those of the ACB.

Situations Vacant Advertising
Please contact the ACB Office:
Tel: 0207-403-8001
Email: admin@acb.org.uk

Display Advertising
PRC Associates Ltd
1st Floor Offices
115 Roebuck Road
Chessington
Surrey KT9 1JZ
Tel: 0208-337-3749
Email: sue@prcassoc.co.uk

ACB Headquarters
Association for Clinical Biochemistry & Laboratory Medicine
130-132 Tooley Street
London SE1 2TU
Tel: 0207-403-8001
Email: admin@acb.org.uk

ACB President
Dr Kath Hayden
Email: president@acb.org.uk

ACB CEO
Victoria Logan
Email: victoria@acb.org.uk

ACB Home Page
http://www.acb.org.uk

X: @TheACBNews

The Association for Clinical Biochemistry & Laboratory Medicine
1953–2023

Develop your career and support your profession

ACB welcomes applications for membership from health professionals and corporate bodies from the whole spectrum of laboratory medicine and healthcare science around the world. We are the representative voice for laboratory medicine and an established scientific authority.

ACB members have access to:

- A unified community platform to share best practice in laboratory medicine
- Support from the recognised trade union for laboratory medicine health professionals in the UK
- An internationally peer reviewed journal: the Annals of Clinical Biochemistry
- News and updates on current issues and development opportunities in laboratory medicine through a regular newsletter and digital communications
- A programme of CPD-accredited national and regional education, and training events at free or discounted rates
- A repertoire of educational and scientific resources, and tools to support your development
- Grants, bursaries and scholarships to support your learning, and scientific research and innovation
- The opportunity to contribute to the profession and build your profile through committee engagement, peer reviews and expert representation regionally, nationally and on an international stage

To find out more about the benefits and eligibility for membership please contact Mike Lester: mike@acb.org.uk or +44(0)20 4542 6044

The Association for Clinical Biochemistry & Laboratory Medicine
1953–2023